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DZT 1606 Stock Market Investigation and Simulation

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in partial fulfillment of the requirements for the
Degree of Bachelor of Science
By:

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Abstract

A six-week simulation was conducted with the goals of gaining experience buying and selling stocks and making the largest profit possible. Investment decisions were made based on prior research, events occurring in the global financial landscape, and trends identified in weekly and monthly price graphs. The results were analyzed and compared to the performance of prominent indices during the same period, concluding that making stock decisions based on price trends and world events could result in a larger return rate.

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1. Introduction

1.1 What is the Stock Market?

The stock market is an exchange where “shares” of publicly-traded companies are bought and sold. In a free-market economy, a public stock market is vital because it allows companies to receive capital in exchange for a percentage share of the company. A “share” of stock is a percentage of the total company, and carries a constantly-changing price that it is purchased and sold for. The constant changes in a stock price reflect the constant purchases and sales of that stock by investors worldwide. The percentage stake owned can be calculated by taking the number of shares owned and dividing it by the total number of issues shares of stock.

There are two main ways of making money via buying and selling publicly-traded stocks. The first is to purchase shares, or equity, in a company and collect a dividend paid by the company if/when it turns a profit. Not all companies pay their shareholders dividends, however. Generally, a dividend is paid from a company’s profit that it isn’t reinvesting into the business. The practice of paying a dividend is a common way for a company to reassure its shareholders that the company is performing well. The second method of making money by buying and selling publicly-traded stocks is to sell shares at a higher price than they were purchased. This sale results in a net profit for the investor, called a capital gain. However, since there is no guarantee that the stock price of a company will rise, investors are often stuck selling their shares at a lower price than they were originally purchased, resulting in a net loss.

The stock market as a whole can be broken down into two smaller submarkets: the primary market and the secondary market. The primary market is where newly-issued stocks are traded as initial public offerings, or IPO’s. An IPO is the initial sale of stock for a company that has just gone public, or is accepting public investors. All subsequent trades are made on the secondary

market, with both individuals and institutional investing firms buying and selling shares of companies.

Stocks are traded through stock exchanges. There are more than twenty commonly used stock exchanges in the world, with sixteen having a market capitalization of more than \$1 trillion. A market capitalization is the total value of an exchange's traded shares. The two largest stock exchanges in the United States are the New York Stock Exchange (NYSE), founded in 1792, and the NASDAQ, founded in 1971. The U.S. stock markets (NYSE, NASDAQ) operate Monday thru Friday from 9:30 AM until 4:00 PM year-round, excluding holidays. Today, nearly all stock trading is done electronically, including purchase, ownership, and sale of shares.

The performance of the stock market can be generalized and tracked using an index. An index combines the values of a number of significant stocks into one figure that reflects the general performance of the market. The two most common indexes in the United States are the Dow Jones Industrial Average Index (DJIA) and the Standard and Poor's 500 Index (S&P). The S&P combines the prices of the top 500 stocks that trade on the NYSE or NASDAQ. The Dow Jones Industrial Average tracks the combined value of 30 significant stocks trading on the NYSE or NASDAQ. While both indexes track stocks that trade in major U.S. markets, the companies that make up the S&P can change while the same 30 companies always make up the DJIA [6].

1.2 Why Invest?

As a private individual, why should you put your hard-earned money at risk by investing in the stock market? Like any investment, the goal of stock trading is to make a profit. However, the stock market allows the unique opportunity for the investor to make money without much work or effort. Generally, there are two methods of making money: working for an income or having your assets work for you. In fact, there are many low-risk investment strategies that are nearly

guaranteed to grow an investment over a long period of time. While saving all of the working income earned can lead to financial security, investing extra savings can lead to returns through interest or via buying and selling assets that increase in value. Stock trading is by no means a sure-fire way to make money. There are no guarantees that a stock price will rise or that a company will make a profit and pay a dividend. But if extensive research is done and informed decisions are made, a large return on investment can be seen.

1.3 How to Get Started

The first step to investing is to develop a plan, including what to invest in, how long an investment will be held for, and how much money will be invested. Historically, stocks are the highest-performing investment in the long term, and are among the best short term investments as well. While bonds, gold, and real estate can be safer investments, meaning they carry a lesser chance of the investor losing money, they also have less potential for a large return. Second, an investor must find a platform to make trades. Today, most private investors trade through online brokerage firms. These firms often provide free accounts to trade stocks and bonds while charging small transaction fees for each trade. Signing up for a brokerage account is simple and there are many companies that offer competitive account features and research tools available to free members. Through the use of these tools and expert advice, even a trading novice can make informed decisions about investing their money. Finally, extensive research must be done to determine which stocks, mutual funds, bonds, etc. are to be invested in. If an investor is choosing to invest only in stocks, they should research the different sectors of the stock market, company profiles, sector performance, public perception, financial records, analyst outlook, and price history to make the most educated investment possible. Once shares have been purchased, an

investor should check in on the performance of their investment periodically and react to changes in the stock price, company performance, and price projections.

1.4 Objectives of the Project

The main objectives of this IQP are:

- To understand factors that determine rise and fall of stock market prices
- To develop knowledge necessary to make financially-responsible stock market decisions
- To gain experience recognizing the impact of real-world events on stock prices
- To compare the different types of stock market and non-market investments, such as:
 - Stocks
 - Bonds
 - Real Estate
 - Mutual Funds
 - Currency
 - Commodities
- To trade and evaluate the performance of selected stocks with the intention of making a profit
- To build a database of trustworthy sources that provide reliable information aiding in stock market decisions
- To understand laws pertaining to the stock market that will be governing all actions
- To research and understand different investment strategies
- To be able to predict general trend of financial landscape and make decisions accordingly
- To recognize conflicting investments in competing sectors
- To maintain a detailed history of trades, decision making factors, and research findings

1.5 Plan for Simulation

The IQP is to consist of three distinct sections: research and planning, simulation, and post-simulation analysis. The simulation portion is to run for six weeks, from the market open on 6/6/16 until the market close on 7/17/2016. At the end of each trading week, an analysis of the portfolio's performance and the week's noteworthy events will be written, including any future plans or reasons for any sales or purchases. During the simulation, a transaction sheet for any sales or purchases will be kept, including stock ticker, purchase or sale price, number of shares, profit or loss, and portfolio value. At the end of the simulation, all held shares will be sold.

1.6 Definition of Simulation Parameters

Throughout the duration of the simulation, the following parameters will be adhered to:

- Only stocks and stock-based funds will be traded
- Initial cash balance of \$5000 USD
- No transaction fee on trades
- Prices will be driven by Yahoo market data
- Must attempt to diversify portfolio as much as possible
- Must provide reasoning behind all transactions

I have decided to only trade stocks and stock-based mutual funds during the simulation. The reasoning behind this decision is that six weeks is a short period to evaluate the performance of an investment. Many other forms of investments, such as gold, oil, bonds, or commodities, likely wouldn't be wise short-term investments. Also, I have decided not to deduct a transaction fee on any trades made. I have made this decision with the intent of keeping a constant reference

point when evaluating portfolio performance and also because there isn't a third-party processing the trades.

2. Different Types of Investments

2.1 Stocks

A stock is a security that shows partial ownership of a corporation. An owner of stock is referred to as a shareholder and is considered an owner of a corporation. The percentage of the corporation owned is calculated as the number of shares owned divided by the number of outstanding shares. Stocks are a solid portfolio foundation, and generally outperform all other investments in both the long and short terms. Stocks are also the most volatile investment, with rapid changes in value occurring by the minute. They are also largely driven by the public perception of a company. For example, a company accused of testing products on animals can expect their stock price to fall as the public perceives them as unethical. In this case, the price fall would likely be due to the company's shareholders selling their stock, causing a large supply and little demand. This effect can also work in reverse, when a company, for example, releases a new product that is well received by the trading public, who in turn purchases their stock in anticipation of the company performing well.

There are two main types of stock: common and preferred. Common stock generally allows the owner a vote at the company's shareholder meetings and the right to receive dividends. The right to a vote at a company's shareholder meeting allows an investor to influence how a company operates and what decisions are to be made. As the name suggests, this is the most often traded form of stock and the form sold to the general public. Preferred stock generally doesn't allow the owner a vote at shareholder meetings, but receives preferential treatment when dividends are paid and during liquidation in the case of bankruptcy. Preferred stock is generally issued to employees of the company and to its board members. An owner of preferred stock is assured of a fixed dividend that takes precedent to the dividends paid to common-stock owners [1].

2.2 Bonds

A bond is an investment in which a corporation or government is loaned money by an investor for a defined period of time at either a fixed or variable interest rate. Generally, bonds are issued by governments, corporations, or municipalities to raise money. Bonds generally come with a face value that is a round number, such as \$10, \$100, or \$1000, a rate of interest called a coupon rate, and also a maturity date that states when the bond will have matured to face value. Bonds are purchased at a value lower than their face value, and mature to face value at the maturity date in accordance with the specified interest rate. There are three main issuers of bonds: Corporations, municipalities, and the U.S. Treasury. The defining characteristic of a U.S. Treasury bond is that the time to full maturity is more than 10 years.

As an investment, bonds offer a concrete return over a longer period of time. Since there is a guaranteed profit, there is nearly zero risk when investing in bonds. However, the return is quite low when compared to the potential return of a stock over the same period of time. The responsibility of exchanging the bond receipt for its matured value is on the owner of the bond [5].

2.3 Mutual Funds

A mutual fund is defined as a unique collection of stocks and/or bonds that is selected and managed by an investment firm. The firm combines the capital from a group of investors and invests it in accordance with the fund's prospectus. A prospectus is the intended percentage breakdown of the investments that make up the mutual fund. Mutual funds are traded in shares just as stocks are, and the entirety of the fund is combined into one individual ticker symbol. Investing in a mutual fund helps automatically diversify a portfolio and mitigate risk. Many mutual funds incorporate domestic and foreign stocks, bonds, and sometimes other, smaller funds. Mutual funds

will often allow the investor to either receive the dividends from the individual stocks incorporated in the fund or to automatically reinvest and receive more shares of the fund.

As an investment, mutual funds can provide reliable income with very little risk. This is because mutual funds are comprised of many individual companies in different sectors of the market, which drastically decreases the chance of the value decreasing because of the poor performance of an individual stock or sector. While they can be both safe and reliable, mutual funds generally don't provide great return rates on an investment. With the fund comprising of many different companies in many different sectors, the positive performance of some companies is negated by the poor performance of others.

2.4 Real Estate

When buying real estate, the purchaser is buying the titled land, any buildings on said land, and the right to all natural resources contained within the plot. These resources can include lumber, crops, livestock, water, and natural minerals. The three classifications of real estate are residential, commercial, and industrial. Residential land consists of a house(s), condominiums, or even undeveloped land in a residential zone. Commercial land includes warehouses, office buildings, or retail stores. Industrial land could consist of a factory, mine or mining operation, or a farm.

When investing in real estate, the surrounding area must be given careful consideration as it can have a large impact the value of purchased land. Factors such as current economic status, tax rate, school systems, and nearby attractions can all make a piece of real estate more valuable. Earning money from real estate can come from the appreciation and sale of a property or income earned as rent. When renting out a property, the risk is generally higher as the tenant's income or business performance can impact the landlord's profits. In the case of commercial property, if the

renting business enters bankruptcy and can't pay the rent, the real estate sits idle and can't earn revenue.

The real estate market is largely cyclical, and therefore fluctuates between what is known as either a "buyer's market" or a "seller's market". A buyer's market is generally defined as when there is a surplus of homes/properties for sale, and the large supply outweighs the demand, driving the price of the land down. It is ideal to purchase real estate in a buyer's market. A seller's market is defined as when there are too few homes/properties to meet the demand for them, and the seller can raise the price of the property because of the demand. When investing in real estate, it is ideal to purchase in a buyer's market, when the property value is low, and sell during a seller's market, when there is a large demand.

2.5 Commodities

A commodity is any good used/traded in commerce. Commodities can be used in the production of other commodities, and individual commodity markets exist for the translation of commodities into profits. Common examples of commodities include precious metals, such as gold, silver, and platinum, lumber, crops, oil, or even natural gas. Generally, investing in a commodity involves purchasing a value of goods and banking on the value of a unit of said commodity rising in the future, at which point the goods will be re-sold at a higher price for a profit. Making a profit from trading commodities can take a long time and carries with it quite a bit of risk. Like trading stocks, there is no guarantee that the value of a commodity will rise. If a large value of goods is invested in and the value of said good decreases, the investor will take a large loss [1].

3. Investing Strategies

3.1 Day Trading

One form of investing is day trading, where an investor buys and sells a stock in a short period of time, and often the same day. Day trading looks to capitalize on small movements in stock prices by buying and selling large numbers of shares. Since large amounts of money are required to see a sizeable return, day trading can be risky to the uneducated.

A basic day trading strategy looks for stocks with liquidity and high volatility. Liquidity means a stock can be identified as valuable and purchased at a similar price, providing more certainty for the trader. If there is no liquidity in a market, each individual transaction has a large impact on the value of each successive transaction. A very liquid market can see many large transactions occur without the price of a stock or commodity being affected. Volatility is the expected range of a stock's price in a trading period. High volatility means the expected high price and the expected low price are far apart, while low volatility means a stock's price doesn't fluctuate much throughout the day. When day trading a stock with high volatility, there is potential for greater profit or loss [4].

3.2 Long Term

Long term investments can be the easiest and least stressful ways to make a profit. "Long term" often refers to a number of years of holding onto an investment, either collecting dividends or allowing the price to rise for an eventual sale and profit. Investing long term can provide a place to gradually grow money without much worry of taking a loss. It also allows an investor to sit back and relax as their money works for them, as opposed to day trading where they must be aware of what is going on at all times. Some general rules for long term investing include:

- stick with a solid strategy

- ignore small drops and fluctuations in price
- allow time for a stock to grow
- be open to investing in smaller, less well-known companies
- set price targets to sell or reinvest

All of these tips work well, but the true measure of how much success an investment will see is determined by the company. Finding a reliable, solid company to invest in can lower the risk of losing money for an investor. Investing for the long term in promising companies, coupled with diversifying a portfolio, can greatly increase the chances of turning a profit.

3.3 Diversification

Diversification is the practice of reducing risk by allocating investments in various industries, forms, and categories. It also allows for maximum profit from a single event because of how different industries react. While industry A may see an event as negative and stock prices in that sector fall, industry B may be positively impacted by the same event and the stock prices of corporations in that industry may rise. Mutual funds do a good job of diversifying a portfolio on their own, since they generally don't incorporate companies competing in the same industry. While diversity is generally a good thing when investing, investing in too many positions can be detrimental to a portfolio. If there is a limited amount of money to be invested, a balance of diversity and average investment value can provide the most security and profit potential. Since risk can never be completely eliminated, a balanced approach to investing will generally outperform an ultra-specialized portfolio.

3.4 Foreign vs. Domestic

The decision to invest in foreign stocks vs domestic (U.S.) stocks is generally dependent on the forecasted economic futures of the U.S. and the rest of the world. Currently, the foreign

markets are being projected as more optimistic from an investment standpoint when compared to the U.S. market. This can be due to a slew of factors, some of which include oil prices, imports, exports, financial situation, and the general cyclical nature of the economy. The decision where to invest must take into account all of these factors, as well as trusted analyst projections, and individual company profiles.

3.5 Spotting Trends & Forecasting

The most successful investors use historical data to dictate investment decisions. This practice, known as forecasting, is used by individual investors and businesses alike to allocate their assets in markets that are predicted to grow and earn a profit. There are three main charts used to predict the future of a stock price: the line chart, bar chart, and the candlestick chart. The line chart is the standard graphic used to display closing prices over a standard interval of time. A line chart is used to visualize a general trend over a longer period of time. A bar chart introduces the high and low prices over the smaller intervals of time, showing real-time jumps or drops in the stock price via a difference in bar color. This chart impacts real-time decisions made based on the change in the stock price. The candlestick chart is similar to the bar chart however it adds the open and close prices of the stock in the form of wider bars overlaid onto a thinner line that shows the range. Bar and candlestick charts generally incorporate trading volume in their graphs.

There are many patterns that repeatedly occur on these graphs that can provide insight into the future performance of the stock price. These patterns can be observed in as little as seven days or as long as multiple years. When trading based on chart patterns, it is important to allow the pattern to fully develop before reacting. Many reoccurring graphical characteristics have been consistent in forecasting the upcoming price behavior, but proper pattern identification is important:

- Head and shoulders: Signals a reversal of trend of the stock price. Characterized by one major peak, or head, and two minor peaks (shoulders) located on either side of the head (Figure 3.1).

A head and shoulders signal is one of the more reliable graphical behaviors stocks can show.



Fig. 3.1, Head and Shoulders Pattern [1].

- Cup and Handle: A chart pattern predicting an upward price trend. Characterized by a “cup” shape with a negatively-trending handle (Figure 3.2). An ideal cup and handle pattern had a distinct “U” cup, as opposed to a sharp “V” cup, and the cup is shallow as opposed to deep. Also, an obvious downward handle is more telling than a flatter or rising handle.

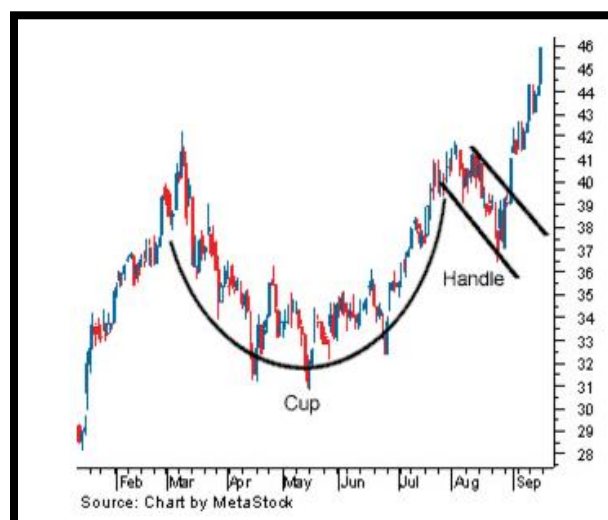


Fig. 3.2, Cup and Handle Pattern [1].

- Double Tops and Bottoms: A stock pattern depicting two consecutive peaks or valleys that signals a reversal of the previous trend (Figure 3.3). Double tops or bottoms are similar to the head and shoulders identifier, but lack the middle “head” peak. While both signify the reversal of the prior chart behavior, the head and shoulders is more reliable than the double tops/bottoms.

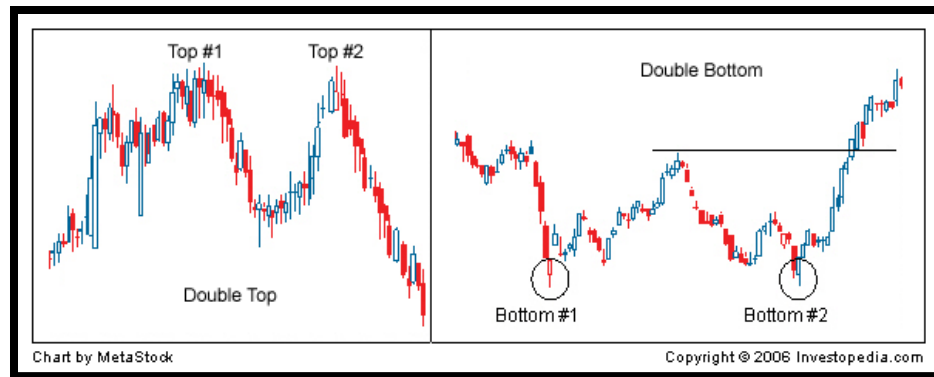


Fig. 3.3, Double Tops and Bottoms Indicator [1].

- Triangles: Signaled by the convergence of two trend lines, triangles demonstrate the continuance of the trend in the direction of the triangle. For a symmetrical triangle, the trend predicted is the same trend that occurred before the occurrence of the triangle (Figure 3.4).

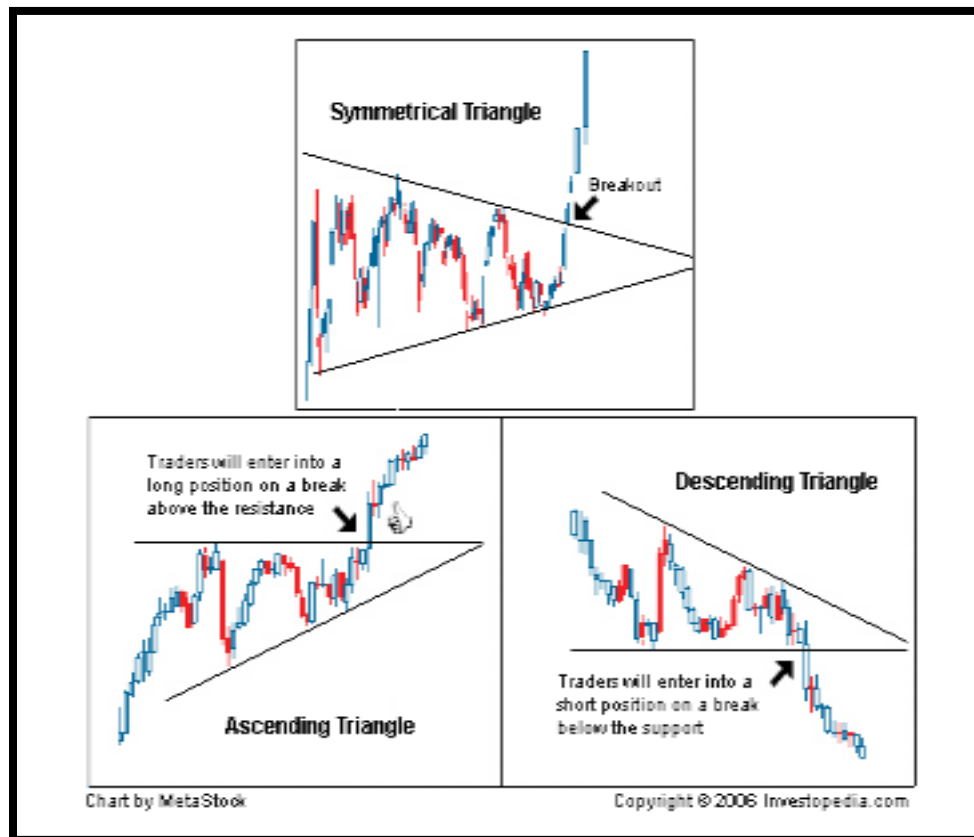


Fig. 3.4, Ascending, Descending, and Symmetrical Triangle Patterns [1].

4. Stock Selection

4.1 Stock 1: AO Smith Corp. (AOS)

AO Smith Corp. operates in the growing building materials subsection of the Industrials sector building a range of water heaters, boilers, and other residential and commercial products. AO Smith Corp. operates in the United States, Canada, India, Europe, and China, but are a U.S.-based company. Currently, AO Smith Corp has 13,400 full time employees. The Building products subsection of the Industrials sector can include manufacturers of building components, home improvement products, and home improvement equipment. Building Products has seen growth of 9.47% YTD, 23.65% in the last year, 70.36% in the last three years, and 157.63% in the last five years. The Industrials sector is also on the rise, with three-year growth of 29.03% and five-year growth of 53.59%. AO Smith Corp. (AOS) is nearing its 52-week high of 83.92 and is projected as very bullish by analysts. AOS is in the 96th percentile in Market Capitalization and the 85th percentile in Total Revenue when compared to the industry average. AOS does pay a dividend, but the payment date is 5/16 annually, meaning that a dividend won't be collected during the duration of this simulation [2].



Fig. 4.1.1, AOS six-month price chart [3].

The A.O. Smith price chart for the past six months (Fig. 4.1.1) shows what appears to be a double-bottoms pattern, followed by an obvious and proven reversal of the previously downward trend. Also, the prices from the past month and a half depict what could be a cup and handle, which would predict an upward trend in the future. These indicators, along with the promising performance of the Building Products subsection and the Industrials sector in the past year, make A.O. Smith Corp. a promising investment for short-term growth.

4.2 Stock 2: Baldwin and Lyons Inc. (BWINB)

Baldwin and Lyons Inc. is an insurance company based and operating in the United States. Baldwin and Lyons Inc. specializes in property and casualty insurance, including commercial vehicle fleet insurance, workers compensation, and cargo insurance. BWINB operates in the

Insurance subsection of the Financials sector, has 438 full time employees, and is traded on the NASDAQ. The Insurance subsection has seen positive growth recently, including total growth of 2.29% YTD, 3.11% in the last year, 27.35% in the last three years, and 68.61% in the last five years. BWINB was rated as very bullish by 8 out of 10 analysts. Also, Baldwin and Lyons Inc. is scheduled to announce their Q2 earnings before the market open on 8/4/2016, and pays a dividend on 6/7/2016 [2].



Fig. 4.2.1, BWINB six-month price chart [3].

The BWINB price chart from the past six months (Fig. 4.2.1) depicts a clear upward trend that appears to potentially be converging into an upward triangle pattern. If this is the case, this upward triangle pattern would signal to buy as the price is poised to rise. Also, there is what could be the beginning of a cup and handle indicator that has occurred in the past few weeks. Even if this dip isn't a cup and handle, it could be an opportunity to purchase BWINB at a discounted price because of an abnormality caused by unusual trading volume. Similar to AOS, Baldwin and Lyons operates in a booming Financials sector and shows good potential for growth.

4.3 Mutual Fund: Manning & Napier Real Estate Series Class I (MNRIX)

The Manning & Napier Real Estate Series Class I mutual fund aims for short-term income to supplement long-term growth through investing in companies in the real estate industry. MNRIX is a much diluted fund, with the top 10 positions only accounting for 27.85% of the total prospectus. Projected one year returns are 4.53%, which vastly outperforms similar projections for the S&P 500 at 1.78% [2]. The main investment positions of the MNRIX fund are property groups and real estate investment trusts. Since the fund is comprised of primarily real estate-related positions, the risk involved with this investment is directly tied to the real estate market. The real estate market changes rapidly in response to tax rates, interest rates, and economic conditions. MNRIX provides a unique investing opportunity in that it allows for a (theoretically) safer investment in a volatile market sector. This presents the opportunity for large returns in the short term, while also seeking to minimize potential for loss.

With the national 30 year fixed interest rate set relatively low at 3.36%, the real estate market is positioned for large growth. Getting a loan with a low interest rate makes buying property more appealing to more people, which leads to profits for the companies dealing in real estate. With Federal Reserve meetings set for June and July, there is a chance the rates will change and the expected profit margin for the fund will shrink.

4.4 Stock 3: MeetMe Inc. (MEET)

Operating in the Internet Software and Services subsection of the Information Technology sector, MeetMe Inc. (MEET) operates a social media network for meeting new people in the United States. MEET also operates a mobile application, and both the application and web service offer marketing and monetization opportunities. In the last 52 weeks, MEET has seen their stock

price rise by more than 169%. MeetMe Inc. is publicly traded on the NASDAQ and is ranked in the 63rd percentile for revenue growth when compared to the industry average. The Internet Software and Services division of the Information Technology sector is one of the fastest growing industries there is, seeing a more than 30% rise overall in the past year and 78.54% rise in the last three years. On top of tremendous outlook and analyst anticipation for the stock to outperform projections, MEET is set to announce their Q2 earnings report prior to the market open on July 28th, meaning a potential rise in activity [2].



Fig. 4.4.1, MEET six-month price chart [3].

In the past six months, MeetMe, Inc. has seen periods of rapid growth, followed by sharp decline (shown in Fig. 4.4.1). These peaks have formed what appears to be double bottoms, which were followed by a period of steady growth. MEET is up nearly 40% in the last six months, and the current price is near the six-month high. Operating in an exploding sector of the market, MEET represents an affordable stock poised to continue growing.

5 Simulation

5.4 Simulation Week 1

On 6/6/2016, the following investments were made upon market open:

- BUY 245 shares of MeetMe Inc. (MEET) at \$4.06/share
- BUY 51 shares of Baldwin and Lyons, Inc. (BWINB) at \$24.00/share
- BUY 200 shares of Manning & Napier Real Estate Fund (MNRIX) at \$7.70/share
- BUY 15 shares of AO Smith Corp. (AOS) at \$82.54/share

The above investments represent 99.9% of the \$5000 of initial funds. Each transaction was recorded in the Transaction Log, including date, purchase price, shares, and total investment. The investments were made with the following investment strategy in mind:

- Approximately 30% invested in real estate based mutual fund, for security
- Approximately 20% invested in MeetMe Inc.
- Approximately 25% invested in Baldwin and Lyons, Inc.
- Approximately 25% invested in AO Smith Corp.

This strategy was selected to help balance volatile, potentially risky stock purchases with a steadier, more reliable mutual fund in an attempt to maximize profit potential. However, in an effort to see higher returns in a relatively short investment period, 70% of the initial capital was invested in stocks, all of which showed patterns trending upward and positive analyst projections.

At the close of 6/10, which represents the first week of the simulation, the four investments closed as follows:

Company Name	Ticker Symbol	Current Week Close	Previous Week Close	Weekly Gain/Loss (\$)	Weekly Gain/Loss (%)	Total Gain/Loss (\$)	Total Gain/Loss (%)
MeetMe, Inc.	MEET	\$4.32	\$4.06	\$0.26	6.4%	\$0.26	6.4%
Baldwin & Lyons, Inc.	BWINB	\$24.82	\$24.00	\$0.82	3.4%	\$0.82	3.4%
Manning & Napier	MNRIX	\$7.76	\$7.70	\$0.06	0.7%	\$0.06	0.7%
A.O. Smith, Corp.	AOS	\$83.68	\$82.54	\$1.14	1.4%	\$1.14	1.4%

Table 5.1.1 Week 1 Portfolio Summary

- MEET: \$4.32, up \$0.26 (6.4%) since purchase
- BWINB: \$24.82, up \$0.82 (3.4%) since purchase
- MNRIX: \$7.76, up \$0.06 (0.7%) since purchase
- AOS: \$83.68, up \$1.14 (1.4%) since purchase

Cumulatively, the entire portfolio initially worth \$5000 is valued at \$5131.42 for an increase of \$131.42, or 2.6%.

When compared to the Dow Jones Industrial Average (DJIA) over the same span, the simulation portfolio performed well. The DJIA opened 6/6 at \$17825.69 and ended 6/10 at \$17865.34, finishing up 0.22% for the week. In comparison, the simulation portfolio saw more than ten times the growth of the DJIA percentage-wise, at 2.6%. This growth shows that the stocks selected for the simulation are vastly outperforming the major U.S. market stocks.

After one week, it appears that the initial investments are as promising as they were projected to be. A single-week increase of 2.6% is more than respectable and outperforms

expectations. With very little liquid capital and each of the four investment positions performing well, no transactions will be made prior to market open on 6/13. One strategy I may look into is selling a few shares of the worst performing stock and using that money to attempt day trading for either a single day or an entire week. Since this simulation is being performed under the assumption that there are no transaction fees, day trading has the potential to show significant returns.

Week 1 Portfolio Price Performance

MeetMe, Inc. (MEET)



Fig. 5.1.1, MEET Week 1 Price Performance [3].

In the first week of the simulation, MeetMe, Inc. saw more than 6% growth from \$4.06 to \$4.32. The price chart for the week (Fig. 5.1.1) shows the continuance of the upward trend predicted by the previous six months, with a setback on Thursday from an unusual amount of activity. The stock rebounded nicely on Friday, but the dip on Thursday could be the midpoint

between double peaks, which would signal that the trend is reversing. With no immediate concern, I'm going to allow the pattern to develop without jumping to conclusions.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.1.2, BWINB Week 1 Price Performance [3].

Closing the week up 2.69%, Baldwin and Lyons, Inc. saw sharp growth on Tuesday due to a high volume of trading. This growth continued over the course of the week, slowing slightly Thursday into Friday. It is reassuring that each sharp drop in the stock price was immediately followed by a steep rise. The stock prices in the past six months looked to be converging in an upward triangle, and this week seems to continue that pattern. BWINB appears to be very volatile, with a large number of distinct peaks and valleys appearing each day, as shown in Fig. 5.1.2.

Manning & Napier Mutual Fund (MNRIX)



Fig. 5.1.3, MNRIX Week 1 Price Performance [3].

The Manning & Napier Real Estate-based Mutual Fund saw 0.78% growth on the week, climbing steadily until a weak Friday performance (depicted in Fig. 5.1.3). MNRIX may not be showing the same activity as the other positions, but it provides reliable growth in the long-term. The simulation only takes place over six weeks, which is an incredibly short period of time for a mutual fund to demonstrate its value. However, single-week growth of 0.78% would extrapolate to growth of nearly 5% in six weeks. For a position selected to provide steady growth, a projected increase of 5% surpasses expectations.

A.O. Smith Corp. (AOS)

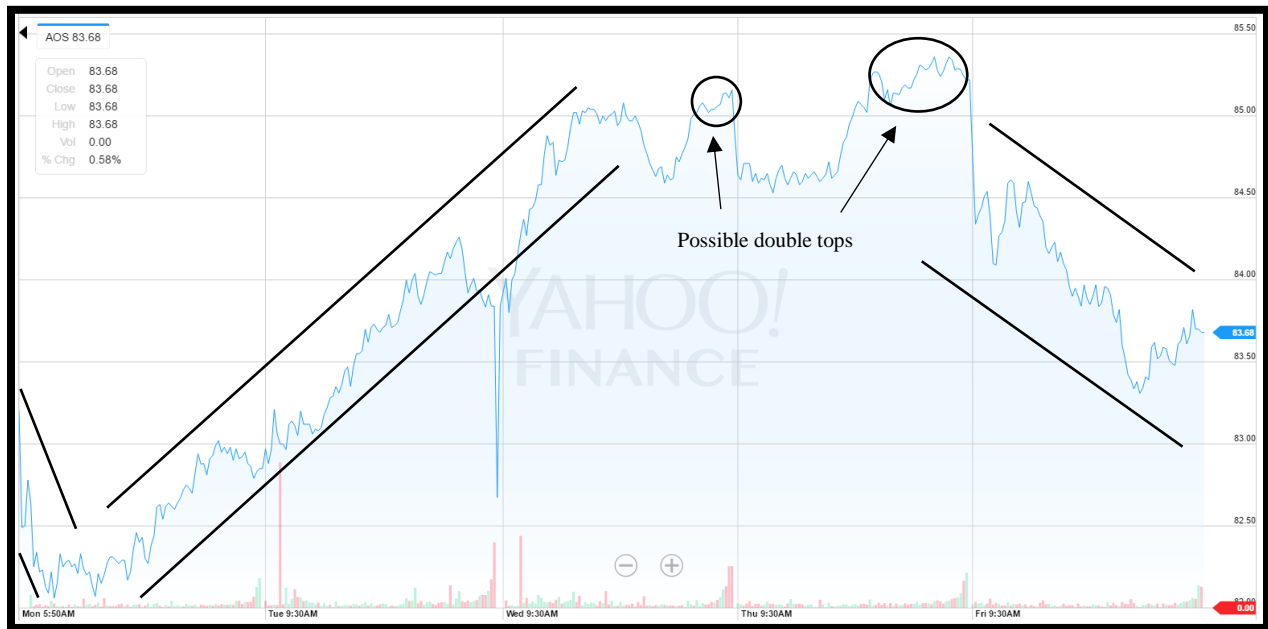


Fig. 5.1.4, AOS Week 1 Price Performance [3].

The past week price graph for AOS (Fig. 5.1.4) shows the potential for a reversal of the previously upward trend. Two consecutive peaks on Wednesday and Thursday could depict a double-tops pattern, and the downward trend that followed reinforces that theory. Similarly to MEET, I am going to allow the pattern to fully develop before making any decisions. Despite the concerning pattern, AOS finished the week up 0.58%. It reached a week-high of \$85.41 before a poor Friday brought it back down to \$83.68.

5.2 Simulation Week 2

At the close of the second week of the simulation, on 6/17, the four investments closed as follows:

Company Name	Ticker Symbol	Current Week Close	Previous Week Close	Weekly Gain/Loss (\$)	Weekly Gain/Loss (%)	Total Gain/Loss (\$)	Total Gain/Loss (%)
MeetMe, Inc.	MEET	\$4.67	\$4.32	\$0.35	8.1%	\$0.61	15.1%
Baldwin & Lyons, Inc.	BWINB	\$24.00	\$24.82	\$0.82	3.4%	\$0.00	0%
Manning & Napier	MNRIX	\$7.80	\$7.76	\$0.04	0.5%	\$0.10	1.2%
A.O. Smith, Corp.	AOS	\$84.44	\$83.68	\$0.76	0.9%	\$1.90	2.3%

Table 5.2.1 Week 2 Portfolio Summary

- MEET: \$4.67, up \$0.35 (8.1%) on the week and \$0.61 (15.1%) since purchase
- BWINB: \$24.00, down \$0.82 (3.4%) on the week and even (+/- 0%) since purchase
- MNRIX: \$7.80, up \$0.04 (0.5%) on the week and \$0.10 (1.2%) since purchase
- AOS: \$84.44, up \$0.76 (0.9%) on the week and \$1.90 (2.3%) since purchase

The portfolio initially worth \$5000 is currently worth \$5194.75, up \$63.33 (1.2%) for the week and \$194.75 cumulatively. Compared to the DJIA, which fell 0.87% in the past week, the simulation portfolio has maintained steady growth despite the poor performance of the U.S. markets.

This second week of the simulation coincided with the June meeting of the Federal Reserve, the government body that sets the interest rates. During this meeting, it was decided that the interest rate would remain at 0.5%, which was generally expected based on a poor May jobs report. Had these rates been raised, the drop in stock prices that is generally seen accompanying a

rise could've also been observed. Fortunately, the rates remaining at 0.5% allowed for continued portfolio growth, including a profit of \$63.33 at the week end.

I had previously given consideration to day trading stocks in an attempt to see larger profits. After doing some research into popular day trading strategies, I have determined that the potential returns aren't worth the risk. Many of the sources that I have consulted regarding the prospect of day trading mention that extensive research and experience are required to gain any advantage in the market. There are hundreds of small price variations each day for each stock, and knowing why they occur and when they are expected is the foundation to successfully day trading. Also, the most common day trading strategies involve investing large amounts of money with the goal of capitalizing on small variations in the stock price. With my portfolio value of \$5000, I would need to abandon a large percentage of my current investments to properly day trade. As nothing in the stock market is guaranteed, and I have been seeing an increase in each of my position's values so far, I don't want to set back the progress made by each of my stocks so far by losing money day trading.

Week 2 Portfolio Price Performance

MeetMe, Inc. (MEET)



Fig. 5.2.1, MEET Week 2 Price Performance [3].

The MEET price graph from the past week (Fig. 5.2.1) shows a number of interesting markers. There was a period of high trading volume on Tuesday that led to a spike in the stock price, including a peak that was abnormally high. This would've been a good sell point, but the price quickly fell back within the expected range. The price activity from Wednesday into Thursday forms an apparent cup, with a decline on Friday forming the accompanying handle. This would signify an upward trend in the near future, a good sign that I should hold steady.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.2.2, BWINB Week 2 Price Performance [3].

This week's price graph for BWINB (Fig. 5.2.2) shows a distinct downward trend brought on by spikes in sale volume. BWINB closed the week down 3.64%, which brings it back to the price I originally purchased it at two weeks ago. Last week's BWINB price graph showed no indications that this would be a down week, and there are no obvious patterns to suggest the price will either rebound or keep falling. I am not going to sell my shares, as this down week could be the handle that would follow the cup that occurred in the graph in May. If this is indeed the case, an upward trend would begin to present itself in the coming weeks.

Manning & Napier Mutual Fund (MNRIX)

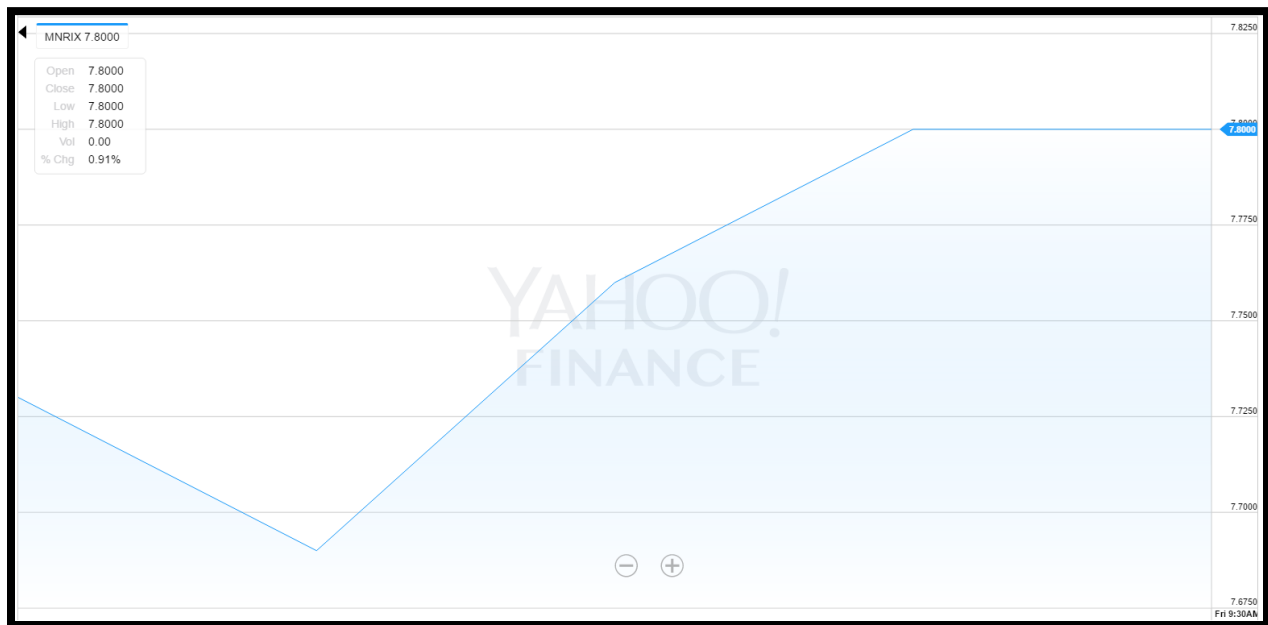


Fig. 5.2.3, MNRIX Week 2 Price Performance [3].

Manning & Napier saw another week of solid growth, up 0.5%. This is on par with expectations, and the price has rebounded from the downward trend that occurred from Friday to Monday (shown in Fig. 5.2.3). MNRIX is intended to be my long-term investment, and I don't see any reason to sell following two strong weeks.

A.O. Smith Corp. (AOS)



Fig. 5.2.4, AOS Week 2 Price Performance [3].

This week's AOS price graph (Fig. 5.2.4) revealed a clear double-bottoms pattern. There was an initial downward trend continuing from the prior week, followed by the distinct double bottoms and a reversal of the trend. This is promising for the coming weeks, though a large spike in sales at the end of the week could drive the price back down. With the prospect of a continued upward trend, I am going to hold my current shares for at least the next few market days.

5.3 Simulation Week 3

At the close of the third week of the simulation, on 6/24, the four investments closed as follows:

Company Name	Ticker Symbol	Current Week Close	Previous Week Close	Weekly Gain/Loss (\$)	Weekly Gain/Loss (%)	Total Gain/Loss (\$)	Total Gain/Loss (%)
MeetMe, Inc.	MEET	\$4.86	\$4.67	\$0.19	4%	\$0.80	19.7%
Baldwin & Lyons, Inc.	BWINB	\$24.44	\$24.00	\$0.44	1.8%	\$0.44	1.8%
Manning & Napier	MNRIX	\$7.78	\$7.80	\$0.02	0.2%	\$0.08	1.0%
A.O. Smith, Corp.	AOS	\$83.77	\$84.44	\$0.67	0.8%	\$1.23	1.4%

Table 5.3.1 Week 3 Portfolio Summary

- MEET: \$4.86, up \$0.19 (4%) on the week and \$0.80 (19.7%) since purchase
- BWINB: \$24.44, up \$0.44 (1.8%) both on the week and since purchase
- MNRIX: \$7.78, down \$0.02 (0.2%) on the week and up \$0.08 (1.0%) since purchase
- AOS: \$83.77, down \$0.67 (0.8%) on the week and up \$1.23 (1.4%) since purchase

After the third week of the simulation, the portfolio is worth \$5249.69, up \$54.94 (1.06%) for the week and \$249.69 from the initial value of \$5000. In the past week, the DJIA fell from a 6/20 open of \$17736.87 to a 6/24 close of \$17400.75 for a loss of nearly 1.9%. For the second consecutive week, the simulation portfolio not only outperformed the DJIA, but finished net-positive despite the major U.S. index falling. When comparing the DJIA and the simulation portfolio over the entire three week trading period, the portfolio is up 4.9% compared to the DJIA falling 2.38%.

The week ending in 6/24 saw a historic vote by Great Britain to leave the EU, dubbed “Brexit”. This caused many world markets to fall significantly, as the value of the British pound and the Euro plummeted. It was widely predicted that a vote to leave would be the worse outcome for the world economy, but the projections of the vote were too close for the markets to move much prior to the results.

Even with the Brexit impact, the portfolio saw a net gain of more than 1% on the back of strong weeks from MeetMe, Inc. (up 4%) and Baldwin and Lyons, up 1.8%. The real estate-based mutual fund stalled for the week, posting a loss for the first week of the project. Many analysts are expecting poor weeks for the world markets in the near future as the impact from the Brexit vote will still be felt.

At the halfway point of the simulation, the portfolio is up nearly 5%. While it was fortunate that the interest rate went unchanged in week 2, the fallout from the Brexit vote could slow growth as we enter the simulation’s second half.

Week 3 Portfolio Price Performance

MeetMe, Inc. (MEET)



Fig. 5.3.1, MEET Week 3 Price Performance [3].

MEET performed well despite the shakiness of the global market. I believe the decline from Tuesday to Thursday (see Fig. 5.3.1) was due to anticipation of the Brexit results. The large decline from Thursday's close to Friday's open is almost certainly a reaction to the vote, but the price rebounded back to within the expected range quickly. The large sale volume to end the week is concerning, but with another profitable week and the stock up nearly 20% since purchase I see no reason to sell any of my 245 shares.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.3.2, BWINB Week 3 Price Performance [3].

The downward trend continued for BWINB until an opening jump Thursday reversed the trend. There were no blatant markers in the past week to suggest this reversal, but Baldwin and Lyons closed the week strong. Similar to MEET, BWINB opened Friday much lower than it closed Thursday but rallied to post a net-gain for the week. Such a strong upward trend, highlighted in Fig. 5.3.2, makes moving any shares of BWINB hard. I plan to continue watching closely in the coming days as the fallout from the Brexit news settles in.

Manning & Napier Mutual Fund (MNRIX)

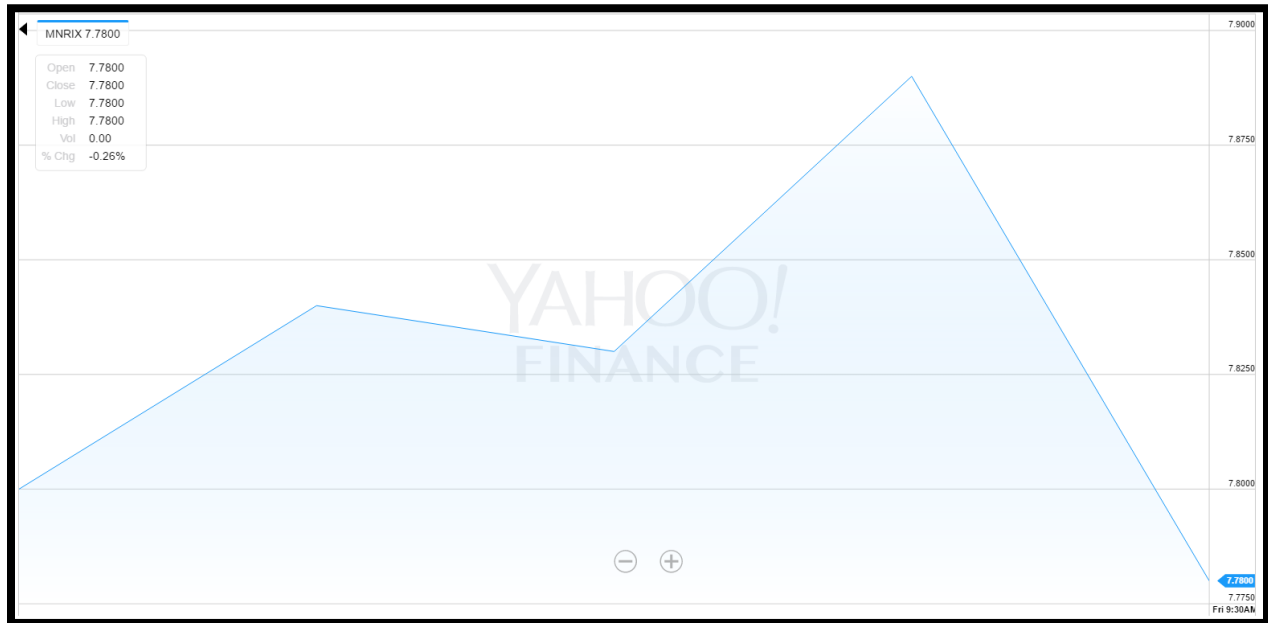


Fig. 5.3.3, MNRIX Week 3 Price Performance [3].

The Manning & Napier Mutual Fund saw the worst response to the Brexit news of any position in the portfolio. While it only fell 0.2% on the week, it dropped nearly 1.2% from open Thursday to the close on Friday (see Fig. 5.3.3). This could be a result of many companies that make up the fund suffering from the news, resulting in the cumulative drop. I am giving strong consideration to selling my shares, but I don't believe the effects of Brexit will cause a long-term impact. For this reason I am going to hold my shares and observe the price behavior for at least the next few days.

A.O. Smith Corp. (AOS)



Fig. 5.3.4, AOS Week 3 Price Performance [3].

A.O. Smith suffered following the Brexit vote, with Fig. 5.3.4 showing a drop of 3.5% between Thursday's close and Friday's open. AOS had been performing well prior to Friday, with the stock poised to post a profit for the week. Ideally, the repercussions of the vote could have been predicted and the shares could have been sold at the end of the day on Thursday. With so much uncertainty in the global market, I am hesitant to sell my shares. I don't want to overreact to a single-day drop without good reason.

5.4 Simulation Week 4

After four weeks of the simulation, the positions closed as follows:

Company Name	Ticker Symbol	Current Week Close	Previous Week Close	Weekly Gain/Loss (\$)	Weekly Gain/Loss (%)	Total Gain/Loss (\$)	Total Gain/Loss (%)
MeetMe, Inc.	MEET	\$5.48	\$4.86	\$0.62	12.7%	\$1.42	34.9%
Baldwin & Lyons, Inc.	BWINB	\$24.63	\$24.44	\$0.19	0.7%	\$0.63	2.6%
Manning & Napier	MNRIX	\$8.13	\$7.78	\$0.35	4.4%	\$0.43	5.5%
A.O. Smith, Corp.	AOS	\$87.21	\$83.77	\$3.44	4.1%	\$4.67	5.6%

Table 5.4.1 Week 4 Portfolio Summary

- MEET: \$5.48, up \$0.62 (12.7%) on the week and \$1.42 (34.9%) since purchase
- BWINB: \$24.63, up \$0.19 (0.7%) on the week and \$0.63 (2.6%) since purchase
- MNRIX: \$8.13, up \$0.35 (4.4%) on the week and \$0.43 (5.5%) since purchase
- AOS: \$87.21, up \$3.44 (4.1%) on the week and \$4.67 (5.6%) since purchase

After the fourth week of the project, the portfolio is worth \$5532.88, up \$283.19 (5.39%) for the week and \$532.88 (10.65%) from the initial value of \$5000. The Dow Jones Index opened the week on 6/27 at \$17355.21 and closed 7/1 at \$17949.37 for a profit of 3.42%. While this represents the best week the DJIA has seen in more than two months, it was still outperformed by the simulation portfolio.

As of the close of week 4 of the simulation, on 7/1, the portfolio was up a record 5.39% for the week, more than doubling the previous single-week high. All four of the positions held finished positive for the week. The best performer was MeetMe, Inc., which saw a rise of more than 12% on the heels of the company being added to the Russell 2000 index, which recognizes a

stock as one of the top 2000 small-cap stocks. MeetMe, Inc. is still slated to release their Q2 earnings report on July 28th, which should drive the price of the stock up in anticipation as the date moves closer. The Manning & Napier mutual fund rebounded from its first down week with a gain of 4.4%.

With the primary goal of this project being to end the simulation as profitable as possible, it is difficult to abandon any of the stocks that I currently own. All positions are up more than 2.5% in just the four weeks since purchase, with three of the four up more than 5%. The only stock I could consider trading is Baldwin and Lyons, Inc., which is stalling a bit at \$24.63. The insurance company is still projected as very bullish by analysts, and is still trending upward, but hasn't shown the returns of the two other stocks in my portfolio. Baldwin and Lyons operates in the financial sector, which was predicted to see the largest impact from Great Britain leaving the European Union. I would need to see consecutive down days for the stock or sector to consider selling. One week after the Brexit results caused a massive drop in the world markets, the DJIA rebounded nicely, up more than 500 points on the week and back above 17,500, where it was before the vote. If this performance is maintained, there is a lot of potential for profit before the end of the simulation.

Week 4 Portfolio Price Performance

MeetMe, Inc. (MEET)

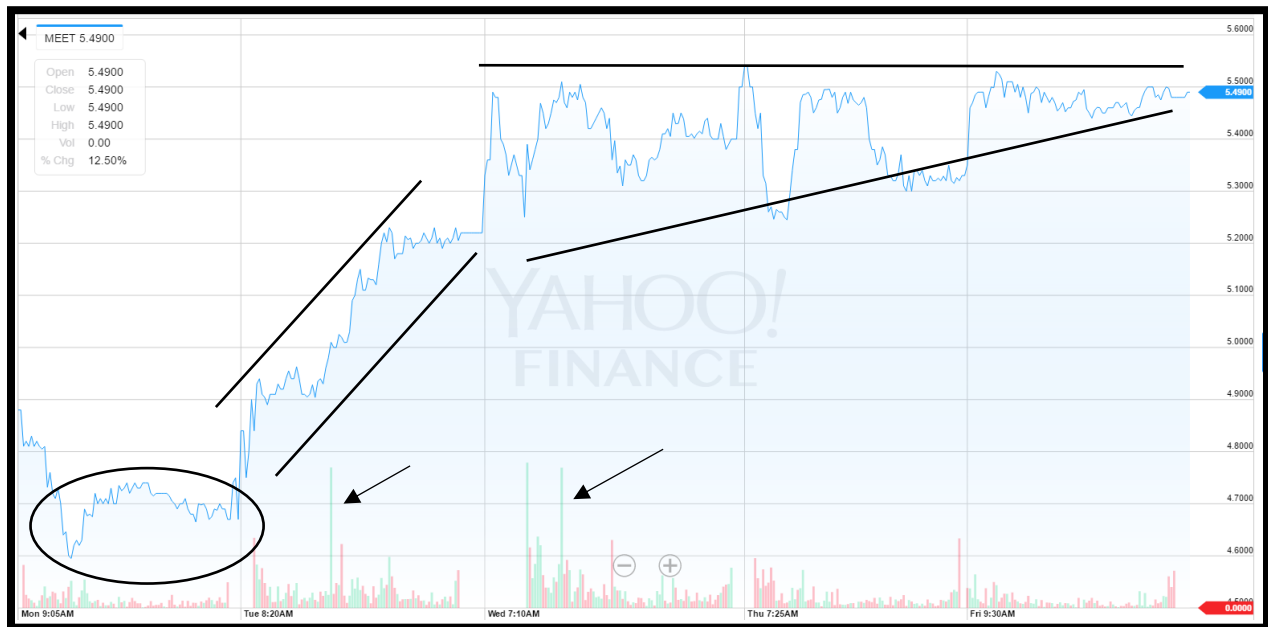


Fig. 5.4.1, MEET Week 4 Price Performance [3].

MeetMe, Inc. saw a great week following the Brexit vote, up more than 12% on a high volume of trading. The price graph appears to reverse trend following a double bottom, working into a potential upward-triangle pattern highlighted in Fig. 5.4.1. Both of these markers signal an upward trend, meaning the rapid price increase could continue. I think it would be shortsighted to sell my MEET shares now, even though it would mean a profit of nearly 35%. The stock is poised to continue growing, especially as their Q2 earnings report release moves closer.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.4.2, BWINB Week 4 Price Performance [3].

BWINB finished the week up a modest 0.7% after suffering a Wednesday setback. The stock trended up all week before flattening off Friday (see Fig. 5.4.2). There were two major spikes in sale volume early in the week which probably contributed to the large drops in price. BWINB continues to be the most volatile stock in my portfolio, with many steep spikes and drops in price throughout the day. There is still a general upward trend to the Baldwin and Lyons price graph, meaning an optimistic outlook for the future.

Manning & Napier Mutual Fund (MNRIX)



Fig. 5.4.3, MNRIX Week 4 Price Performance [3].

Manning & Napier had a very good week as the mutual fund's price graph (Fig. 5.4.3) shows a rise of more than 4%. This is reassuring, as the decision not to sell following last week's performance was difficult. MNRIX has now risen 5.5% since the start of the simulation. As I mentioned following Week 1, I would be satisfied with the fund's performance if it grew by 5% over the course of six weeks. With no reason to sell my shares, I am going to continue observing the price performance.

A.O. Smith Corp. (AOS)



Fig. 5.4.4, AOS Week 4 Price Performance [3].

A.O. Smith rose 4.1% on the week, rebounding from a poor Friday as a result of the Brexit vote. The short-lived downward trend reversed Monday and led to consistent growth the rest of the week. My only concern with AOS' performance is the very high sale volume that arose late Friday (see Fig. 5.4.4). The price began to sag as the week came to a close, and the increase in sales could mean a low open next Monday. If the sales are indicative of a larger trend or issue I will have to sell my shares before I suffer a loss. With no reason to take action, I am going to sit on my shares and observe what the future holds.

5.5 Simulation Week 5

At the end of the fifth week of the simulation, the four investment positions closed as follows:

Company Name	Ticker Symbol	Current Week Close	Previous Week Close	Weekly Gain/Loss (\$)	Weekly Gain/Loss (%)	Total Gain/Loss (\$)	Total Gain/Loss (%)
MeetMe, Inc.	MEET	\$5.84	\$5.48	\$0.36	6.57%	\$1.78	43.8%
Baldwin & Lyons, Inc.	BWINB	\$24.69	\$24.60	\$0.06	0.24%	\$0.69	2.88%
Manning & Napier	MNRIX	\$8.22	\$8.13	\$0.09	1.1%	\$0.52	6.75%
A.O. Smith, Corp.	AOS	\$89.24	\$87.21	\$2.03	2.33%	\$6.70	8.11%

Table 5.5.1 Week 5 Portfolio Summary

- MEET: \$5.84, up \$0.36 (6.57%) on the week and \$1.78 (43.8%) since purchase
- BWINB: \$24.69, up \$0.06 (0.24%) on the week and \$0.69 (2.88%) since purchase
- MNRIX: \$8.22, up \$0.09 (1.1%) on the week and \$0.52 (6.75%) since purchase
- AOS: \$89.24, up \$2.03 (2.33%) on the week and \$6.70 (8.11%) since purchase

The stock portfolio finished week five of the simulation with a total value of \$5672.59, up \$139.71 (2.52%) on the week and \$672.59 (13.45%) since purchase. In comparison, the DJIA finished the week ending in 7/8 at \$18146.74 after opening the week on 7/5 at \$17904.45 for a net gain of 1.35%. For the fifth consecutive week, the simulation portfolio outpaced the Dow Jones Industrial Average in growth. While the stocks that make up the portfolio were carefully selected, it is surprising that they are consistently outperforming the 30 most prolific stocks trading on the major U.S. markets.

One major factor that impacted market performance this week was the June jobs report, which was vastly more impressive than predicted. This jobs report goes a long way towards indicating what could happen when the Federal Reserve meets to address the national interest rates later in the month. As well as the jobs report, the falling price of crude oil is slowing stock growth, with the price of crude oil hitting a two-month low on Thursday. Looking ahead to the final week of the simulation, there are many decisions to be made for a final push for profits. One thing to consider is that China is set to announce its latest inflation data on Saturday evening, which could greatly impact the global financial landscape.

As of the market close on 7/8, I have still yet to buy or sell any of the stocks that I initially purchased. My reasoning behind this is that they are all performing very well, and I don't see a need to make any changes. This observation becomes even clearer when looking at how each individual stock has performed over the last five weeks compared to the Dow Jones Industrial Average:



Fig. 5.5.1, MEET vs. DJIA [3].

When looking at the performance of MeetMe, Inc. (Fig. 5.5.1), we can see impressive growth in the past five weeks, a relatively short period of time. The stock has grown by more than 43% (there are small variations between graph percentages and calculated percentages due to rounding), while the Dow Jones has virtually remained level. Large volumes of purchases and sales can cause big swings in the price of a stock, as demonstrated by the red and green bars at the base of the chart. Each green bar, representing large purchases, brings a rise in the stock price, while each red bar, signifying sales of stock, coincide with a dip in the stock price. In the case of MeetMe, Inc., there is a larger total of purchases than there is sales, helping to explain the large rise in value.



Fig. 5.5.2, BWINB vs. DJIA [3].

The price chart of Baldwin and Lyons (Fig. 5.5.2) tells a similar story to that of MeetMe, Inc. While BWINB hasn't seen as impressive growth as MEET has in the past five weeks, it is still up more than 2%. At one point around weeks 2-3 of the simulation the DJIA passed BWINB in performance, but world events such as the Brexit vote and the concurrent performance of the Euro and the British pound have set the major U.S. index back.



Fig. 5.5.3, AOS vs. DJIA [3].

The performance graph of AO Smith Corp, shown in Fig. 5.5.3, is interesting as it is nearly identical to that of the Dow Jones Index. AO Smith Corp operates in the Industrials sector, dealing in water heaters, boilers, and other commercial products. AO Smith Corp also operates in many countries around the world, including Europe, India, and North America. They have a vested interest in many different trading sectors, from raw materials to transportation to insurance. This means that any events that have a global impact can shake the stock's performance, namely the Brexit vote. The main reason for the large dip in both DJIA and AOS around June 24th stem from both the immediate reaction to, and the fallout from, the vote for Great Britain to leave the European Union. This also means that the price of AO Smith stock can be projected to shadow the Dow Jones index for the near future. Coming off a strong June jobs report and an improved global financial outlook, I expect a strong performance in the final trading week from AO Smith Corp.



Fig. 5.5.4, MNRIX vs. DJIA [3].

The Manning & Napier real estate-based mutual fund has shown steady growth throughout the course of this simulation. With the MNRIX fund being incredibly diverse, it isn't surprising that Fig. 5.5.4 shows a consistent week-to-week profit. Again, the chart shadows that of the DJIA, but that is most likely because the MNRIX fund includes positions from many different sectors, similar to the Dow Jones Index.

With each of the four positions currently positive for the simulation, and each up by more than 2%, it's difficult to justify selling any investments. The total value of the portfolio has increased more than 13% in five weeks, projecting to more than \$6700 in profit on a \$5000 investment in a single year.

Week 5 Portfolio Price Performance

MeetMe, Inc. (MEET)

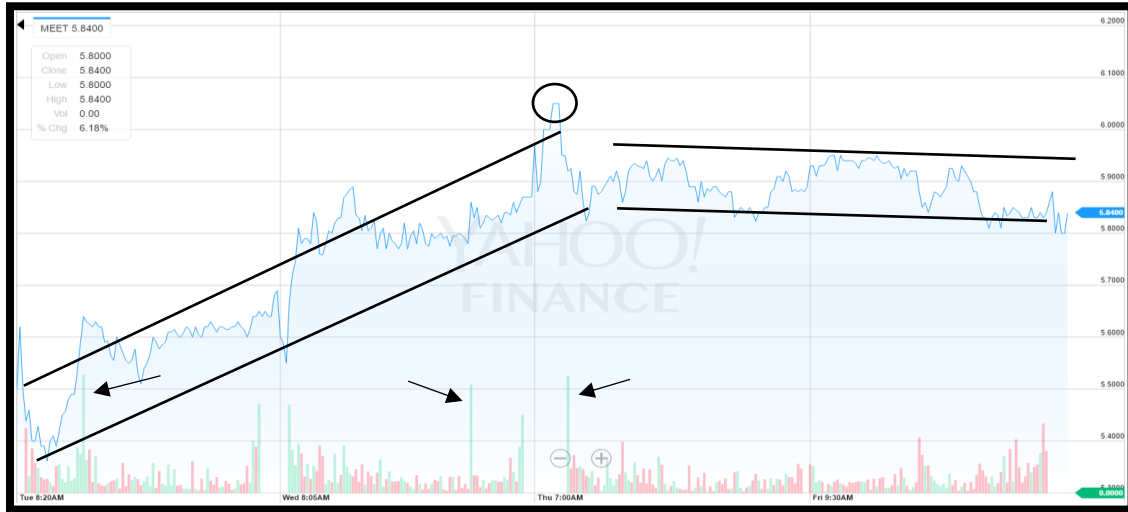


Fig. 5.5.5, MEET Week 5 Price Performance [3].

In the fifth week of the simulation, MEET continued its strong performance by finishing up 6.57%. The price trended upwards for most of the week, shown in Fig. 5.5.5, but the growth tailed off as the week concluded. There is potentially a head and shoulders pattern emerging, with the trend reversal occurring right at the head. This would explain the slowed growth, but the pattern isn't developed enough to say for sure. There were a few instances of high trading volume throughout the week that generally brought jumps in the stock price with them. MEET's continued growth makes the decision not to sell easy. Since purchase, MeetMe, Inc. is up more than 43% and is approaching their Q2 earnings release date. This should help drive growth in the coming weeks.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.5.6, BWINB Week 5 Price Performance [3].

BWINB saw a slight rise in the fifth week of the simulation, jumping 0.24%. There is a distinct upward triangle pattern in the past week's graph (Fig. 5.5.6), signaling that the price is poised to continue rising. There is also another sharp increase in sale volume at the end of the week. This has occurred on many of the weekly graphs I've observed, and I suspect that it is common for sale volume to spike at the end of each week regardless of the individual stock. Baldwin and Lyons is up nearly 3% in the five weeks since purchase, a great 5-week return rate. I am going to hold steady until there is a sign that the stock will falter.

Manning & Napier Mutual Fund (MNRIX)

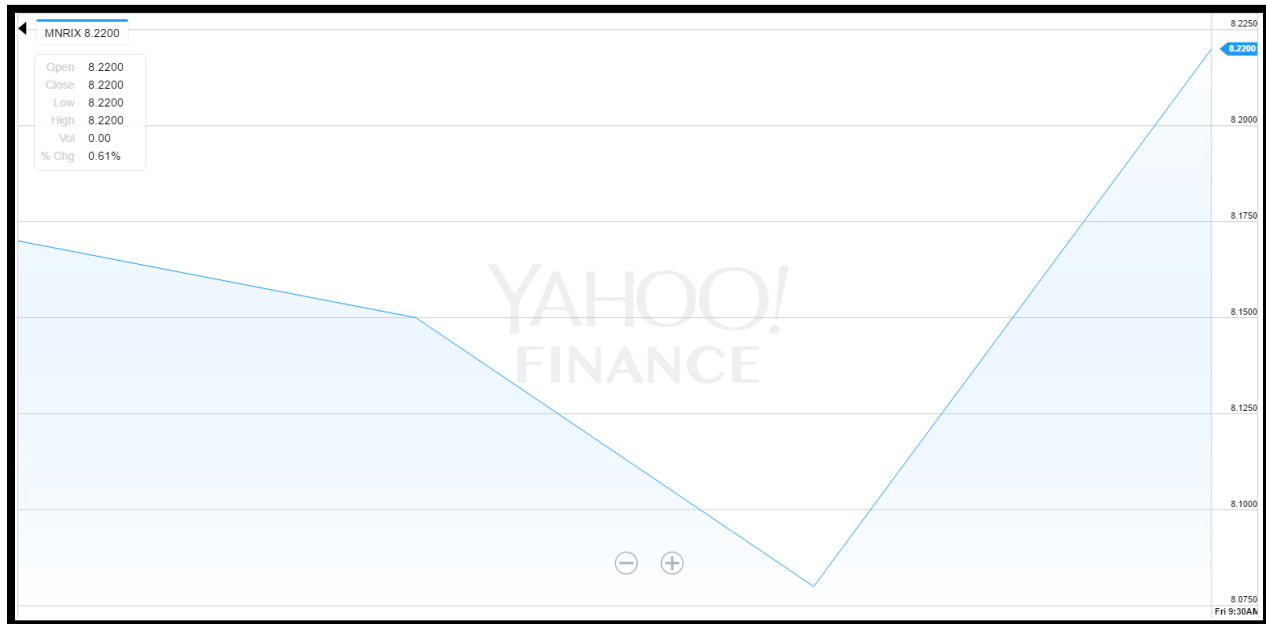


Fig. 5.5.7, MNRIX Week 5 Price Performance [3].

The Manning & Napier Real Estate-based Mutual Fund grew 1.1% in the fifth week of trading, depicted in Fig. 5.5.7. Through the first half of the week it appeared that the fund was going to finish in the red for the second time in three weeks, but a late-week rally avoided the loss. While it has been steadily growing in value over the past five weeks, I think I am going to sell my shares at the start of next week in favor of investing in a more volatile position. I am doing this with the intent of maximizing my profit potential in the final week of the simulation. I am still unsure if I will be reinvesting the money in a new stock or one currently in my portfolio. If I do sell my shares, I will make \$0.52/share on my 200 shares for a profit of \$104.

A.O. Smith Corp. (AOS)



Fig. 5.5.8, AOS Week 5 Price Performance [3].

There was once again an upward trend to the A.O. Smith price graph in Week 5 (Fig. 5.5.8). While the price did slump at the beginning of the week as predicted, high purchase volume immediately drove the price back up before midday Tuesday. Despite the bleak outlook following the Brexit vote, AOS has surged more than 8% since the 6/6 purchase. With one week of the simulation remaining, I will hold onto AOS with the hope that the profits continue.

5.6 Simulation Week 6

As of the open of the market on 7/11, the following trades were made and recorded in the transaction log:

- Sell 200 shares of MNRIX at open price of \$8.22 for a total of \$1644
- Buy 280 shares of MEET at open price of \$5.87 for a total of \$1643.60

These moves were made in an attempt to maximize total profits in the final week of the simulation. The Manning & Napier mutual fund is ideal for reliable, steady profits, but MeetMe, Inc. has been growing at an incredible rate and is a much better short-term investment. A total profit of \$104 was made on the sale of MNRIX, with an increase of \$0.52/share on 200 shares.

At the conclusion of the sixth and final week of the stock market simulation, the portfolio positions closed as follows:

Company Name	Ticker Symbol	Current Week Close	Previous Week Close	Weekly Gain/Loss (\$)	Weekly Gain/Loss (%)	Total Gain/Loss (\$)	Total Gain/Loss (%)
MeetMe, Inc.	MEET	\$6.34	\$5.84	\$0.50	8.56%	\$2.28	56.1%
Baldwin & Lyons, Inc.	BWINB	\$25.53	\$24.69	\$0.84	3.4%	\$1.53	6.38%
A.O. Smith, Corp.	AOS	\$90.96	\$89.24	\$1.72	1.92%	\$8.42	10.2%

Table 5.6.1 Week 6 Portfolio Summary

- MEET: \$6.34, up \$0.50 (8.56%) on the week and \$2.28 (56.1%) since purchase
- BWINB: \$25.53, up \$0.84 (3.4%) on the week and \$1.53 (6.38%) since purchase
- AOS: \$90.96, up \$1.72 (1.92%) on the week and \$8.42 (10.2%) since purchase

The stock portfolio finished the simulation with a value of \$5998.53, up \$325.94 (5.75%) on the week and \$998.53 (19.97%) overall. By comparison, the Dow Jones Industrial Average Index (DJIA) finished the week up \$294.82, or 1.62%, and is up only 3.33% since the start of the simulation on 6/6.

The sixth and final week of the stock market simulation once again saw growth from each of the positions. MeetMe, Inc. saw the largest jump, gaining more than 8.5% on the week and closing the simulation up 56.1%. The attempt to “double down” on MeetMe, Inc. at the start of the week proved fruitful, as the \$1644 purchase grew to \$1784. Had I stuck with the Manning & Napier Mutual Fund, that \$1644 of stock would have closed Friday worth \$1638. In total, the decision to reinvest in MEET netted my portfolio \$146.

As for the results of the stock simulation, I am extremely pleased with the final portfolio value. An increase of nearly 20% in such a short trading period is very respectable. The average yearly return rate for major market indexes, such as the Dow Jones Industrial Average or the Standard & Poor’s 500, is between 8% and 12% in a non-recession year. Projected over a year, the growth seen in my simulation portfolio would result in a final value of \$13653 on an initial \$5000 investment. That is a return rate of 173%, or a single year’s profit of \$8653. Projecting this rate of return over an entire year may be unrealistic, but a more conservative projection still vastly outpaces the average yearly returns of the DOW and S&P 500.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.6.2, BWINB Week 6 Price Performance [3].

Baldwin and Lyons finished the week up 3.4%, with Fig. 5.6.2 showing steady growth the entire week. Despite an instance of very high sell volume, BWINB increased in value four of the five days this week. I should have given more consideration to selling the stock at the peak early Friday morning, but with the simulation finishing hours later I didn't think to cash out. That lack of action cost my portfolio some money, but the stock could just as easily have risen the rest of the day. The price action Friday could be the start of a cup and handle, further solidifying the upward trend.

A.O. Smith Corp. (AOS)



Fig. 5.6.3, AOS Week 6 Price Performance [3].

AOS finished the simulation strong, up 1.92% for the final week. The price graph (Fig. 5.6.3) shows a level triangle, signifying that the prior trend (generally upward) is to continue. AOS opened Tuesday and Thursday up nearly \$1.25 higher than it closed the preceding days. This is due in part to the constant purchase volume seen at the openings of those days and also to the sale volume that concludes each day. AOS appeared very volatile this past week, showing very frequent and exaggerated changes in price.

Overall Portfolio Price Performance (From 6/6 to 7/15)

MeetMe, Inc. (MEET)

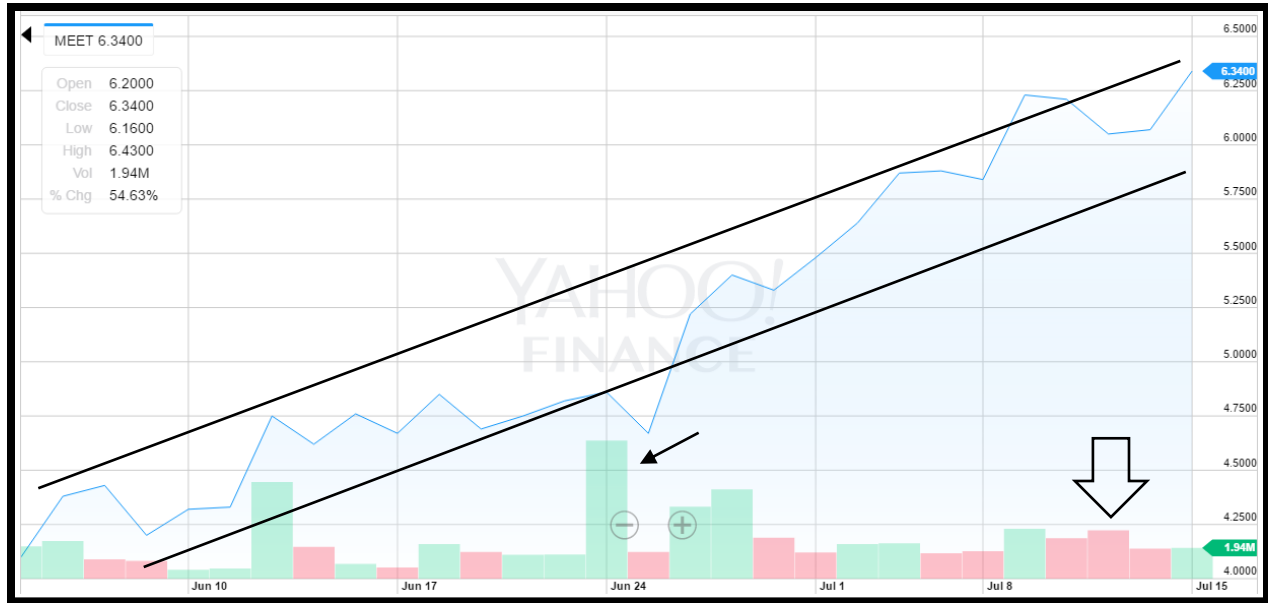


Fig. 5.6.4, MEET Simulation Performance [3].

MEET showed an upward price trend throughout the course of the simulation. Finishing up 56.1% since the initial purchase, there were a couple minor setbacks in the otherwise impressive growth. There were consecutive instances of high sale volume during the sixth week that slowed progress (see Fig. 5.6.4). Also, like most stocks MEET stalled in the days following the Brexit vote.

MEET								
Date	Open	High	Low	Close	Volume		\$ change	% change
7/15/2016	6.2	6.43	6.16	6.34	1938300		0.14	2.3%
7/14/2016	6.11	6.28	6.06	6.07	1903800		-0.04	-0.7%
7/13/2016	6.22	6.27	5.92	6.05	2795500		-0.17	-2.7%
7/12/2016	6.41	6.45	6.08	6.21	2415800		-0.2	-3.1%
7/11/2016	5.85	6.28	5.85	6.23	2869100		0.38	6.5%
7/8/2016	5.95	5.96	5.81	5.84	1781300		-0.11	-1.8%
7/7/2016	5.89	6	5.81	5.88	1674400		-0.01	-0.2%
7/6/2016	5.64	5.9	5.63	5.87	2166800		0.23	4.1%
7/5/2016	5.53	5.66	5.36	5.64	2128100		0.11	2.0%
7/1/2016	5.49	5.54	5.35	5.48	1718000		-0.01	-0.2%
6/30/2016	5.5	5.52	5.2	5.33	2439400		-0.17	-3.1%
6/29/2016	5.25	5.57	5.25	5.4	4791400		0.15	2.9%
6/28/2016	4.95	5.24	4.8	5.22	3957200		0.27	5.5%
6/27/2016	4.98	4.98	4.56	4.67	1739900		-0.31	-6.2%
6/24/2016	4.5	4.89	4.4	4.86	7184600		0.36	8.0%
6/23/2016	4.8	4.91	4.76	4.82	1616200		0.02	0.4%
6/22/2016	4.69	4.75	4.47	4.75	1599600		0.06	1.3%
6/21/2016	4.93	4.95	4.62	4.69	1743000		-0.24	-4.9%
6/20/2016	4.79	4.99	4.75	4.85	2118100		0.06	1.3%
6/17/2016	4.79	4.8	4.66	4.67	973400		-0.12	-2.5%
6/16/2016	4.64	4.83	4.57	4.76	1150400		0.12	2.6%
6/15/2016	4.8	4.84	4.57	4.62	1988300		-0.18	-3.7%
6/14/2016	4.37	4.79	4.32	4.75	5156000		0.38	8.7%
6/13/2016	4.32	4.47	4.27	4.33	927400		0.01	0.2%
6/10/2016	4.18	4.36	4.07	4.32	861900		0.14	3.3%
6/9/2016	4.4	4.4	4.09	4.2	1303300		-0.2	-4.5%
6/8/2016	4.47	4.49	4.21	4.43	1380800		-0.04	-0.9%
6/7/2016	4.12	4.4	4.12	4.38	2271500		0.26	6.3%
6/6/2016	4.06	4.18	4.04	4.1	2017600		0.04	1.0%
Data from finance.yahoo.com								

Fig. 5.6.5, MEET Daily Prices [3].

There were generally one or two days per week that stood out from the rest when it came to MeetMe, Inc.'s performance (Fig. 5.6.5). The stock's best day was 6/14, where the price jumped \$0.38 (8.7%) with trade volume of 5.16 million shares. MEET had five days in the six week span where the stock price jumped 5% or more.

Baldwin and Lyons, Inc. (BWINB)



Fig. 5.6.6, BWINB Simulation Performance [3].

Baldwin and Lyons, Inc. showed consistent growth during the second half of the simulation (shown in Fig. 5.6.6). Prior to the Brexit vote, BWINB was beginning to stall with consecutive periods of high sale volume. However, points of high purchase volume and a solid upward price trend helped the insurance company finish up more than 6% in six weeks. If the dip around the period of the Brexit vote is ignored as an abnormality, the graph of the past six weeks resembles a cup, with a potential handle forming from the past week. This would signify the continuance of an upward trend.

BWINB								
Date	Open	High	Low	Close	Volume		\$ change	% change
7/15/2016	25.81	25.81	25.29	25.53	29500		-0.28	-1.1%
7/14/2016	25.62	25.72	25.39	25.54	27200		-0.08	-0.3%
7/13/2016	25.12	25.63	25.1	25.51	60100		0.39	1.6%
7/12/2016	24.9	25.16	24.9	25.09	68200		0.19	0.8%
7/11/2016	24.75	24.88	24.65	24.87	51300		0.12	0.5%
7/8/2016	24.75	24.75	24.67	24.69	28100		-0.06	-0.2%
7/7/2016	24.74	24.75	24.64	24.69	8400		-0.05	-0.2%
7/6/2016	24.43	24.72	24.43	24.65	150900		0.22	0.9%
7/5/2016	24.63	24.69	24.47	24.57	16800		-0.06	-0.2%
7/1/2016	24.73	24.74	24.59	24.63	12300		-0.10	-0.4%
6/30/2016	24.53	24.75	24.46	24.66	43100		0.13	0.5%
6/29/2016	24.63	24.74	24.26	24.39	30100		-0.24	-1.0%
6/28/2016	24.5	24.79	24.32	24.53	29600		0.03	0.1%
6/27/2016	24.22	24.51	24.1	24.3	46100		0.08	0.3%
6/24/2016	23.96	24.56	23.7	24.44	91500		0.48	2.0%
6/23/2016	23.91	24.53	23.7	24.52	19500		0.61	2.6%
6/22/2016	23.94	23.94	23.66	23.67	33800		-0.27	-1.1%
6/21/2016	23.87	24.1	23.78	23.92	38400		0.05	0.2%
6/20/2016	24.17	24.17	23.94	23.95	37900		-0.22	-0.9%
6/17/2016	24.15	24.2	23.85	24	97600		-0.15	-0.6%
6/16/2016	24.49	24.49	23.89	24.07	76700		-0.42	-1.7%
6/15/2016	24.75	24.8	24.35	24.43	22400		-0.32	-1.3%
6/14/2016	24.74	24.8	24.6	24.72	15100		-0.02	-0.1%
6/13/2016	24.76	24.99	24.69	24.79	36100		0.03	0.1%
6/10/2016	24.77	24.96	24.74	24.82	17300		0.05	0.2%
6/9/2016	24.81	24.92	24.62	24.84	14700		0.03	0.1%
6/8/2016	24.73	24.98	24.53	24.92	20800		0.19	0.8%
6/7/2016	24.25	25.03	24.19	24.43	58800		0.18	0.7%
6/6/2016	24	24.23	24	24.19	31600		0.19	0.8%
Data from finance.yahoo.com								

Fig. 5.6.7, BWINB Daily Prices [3].

When analyzing Fig. 5.6.7, it is noted that Baldwin and Lyons, Inc. didn't have any explosive days like MEET did, with the highest single-day gain at 2.6%. This is partly due to the low trading volume BWINB saw. The most prolific trading day saw less than 151,000 shares traded. This means that BWINB isn't very liquid, meaning that a low volume of trading has a large impact on the stock price. This attribute didn't necessarily hurt the performance of BWINB, but it makes reacting to changes in the stock price more difficult.

Manning & Napier Mutual Fund (MNRIX)*



Fig. 5.6.8, MNRIX Simulation Performance (*Graphed from 6/6 through sell date of 7/10) [3].

MNRIX was the steady earner that I hoped it would be when I invested in it. The mutual fund posted one down week during a period of global financial uncertainty. The general upward trend was consistent during the five week period of ownership (see Fig. 5.6.8), posting a 6.75% profit in that time. Had the investment period been longer, maybe 50-60 weeks, I would probably have invested a larger percentage of my initial capital in a similar fund. With such a short simulation period, owning a mutual fund wasn't practical with the overarching goal of making the largest profit possible.

A.O. Smith Corp. (AOS)



Fig. 5.6.9, AOS Simulation Performance [3].

A.O. Smith, Corp. finished the simulation with the second highest profit margin of the four positions I invested in, growing by 10.2% in the six week span. There was a distinct cup and handle pattern observed during the first three weeks of the simulation (highlighted in Fig. 5.6.9), followed by the upward trend that is generally seen. AOS also saw the largest decline from the Brexit news, taking nearly an entire week to climb back to the pre-Brexit price. A string of high volume trading helped push the stock out of the cup and into the upswing, where it remained until consecutive sell-heavy days caused a slight dip.

AOS									
Date	Open	High	Low	Close	Volume		\$ change		% change
7/15/2016	91.02	91.3	90.49	90.96	468000		-0.06		-0.1%
7/14/2016	91.77	91.9	90.64	90.65	696300		-1.12		-1.2%
7/13/2016	91.15	91.41	90.3	90.46	445800		-0.69		-0.8%
7/12/2016	91.1	91.64	90.63	90.96	514600		-0.14		-0.2%
7/11/2016	89.95	90.76	89.77	90.28	491400		0.33		0.4%
7/8/2016	88.2	89.41	88.09	89.24	470900		1.04		1.2%
7/7/2016	87.49	87.99	87.1	87.48	393600		-0.01		0.0%
7/6/2016	86.31	87.34	86.01	87.22	576900		0.91		1.1%
7/5/2016	87.08	87.08	85.75	86.53	612000		-0.55		-0.6%
7/1/2016	88.11	88.97	86.95	87.21	775700		-0.90		-1.0%
6/30/2016	85.89	88.11	85.65	88.11	735100		2.22		2.6%
6/29/2016	84.56	85.96	84.56	85.6	454100		1.04		1.2%
6/28/2016	82.86	83.79	82.54	83.68	887500		0.82		1.0%
6/27/2016	83.38	83.38	81.01	81.85	945900		-1.53		-1.8%
6/24/2016	83.58	85.21	83.37	83.77	841100		0.19		0.2%
6/23/2016	85.65	86.68	85.64	86.68	390900		1.03		1.2%
6/22/2016	84.9	85.7	84.81	84.88	514300		-0.02		0.0%
6/21/2016	85.32	85.75	84.61	84.8	598800		-0.52		-0.6%
6/20/2016	85.48	86.48	84.92	85.35	706500		-0.13		-0.2%
6/17/2016	83.59	84.59	83.49	84.44	1395000		0.85		1.0%
6/16/2016	83.22	83.94	82.44	83.84	504600		0.62		0.7%
6/15/2016	83.31	84.3	83.11	83.64	884100		0.33		0.4%
6/14/2016	82.88	83.45	82.57	83.06	708000		0.18		0.2%
6/13/2016	83.02	84.33	83.02	83.15	708800		0.13		0.2%
6/10/2016	84.46	85.12	83.23	83.68	570800		-0.78		-0.9%
6/9/2016	84.62	85.39	84.25	85.22	663000		0.60		0.7%
6/8/2016	83.75	85.19	83.75	85.16	974700		1.41		1.7%
6/7/2016	83.09	84.3	82.77	83.84	1197600		0.75		0.9%
6/6/2016	82.63	83.14	82.03	82.85	535400		0.22		0.3%
Data from finance.yahoo.com									

Fig. 5.6.10, AOS Daily Prices [3].

Being the most expensive stock in my portfolio, AOS saw the highest daily trading volume. There weren't too many breakout days for AOS, with only 8 out of a possible 29 posting growth of 1% or more. The best individual day was 6/30, where the stock price jumped 2.6% on 735,000 shares traded (Fig. 5.6.10). This marked one week after the Brexit vote and the point where AOS got back into the expected range for the upward trend it was experiencing.

Dow Jones Industrial Average Index (DJIA)

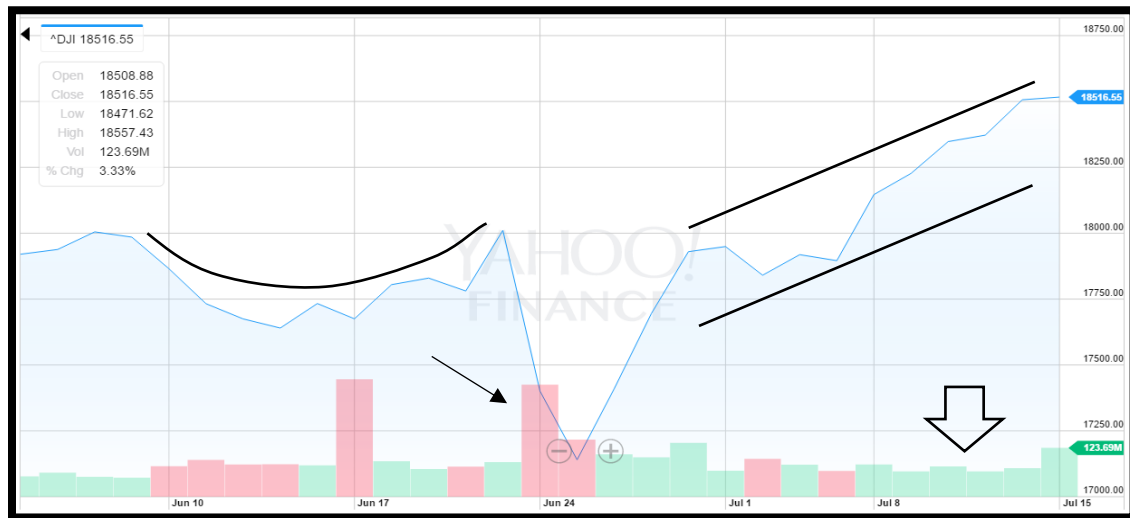


Fig. 5.6.11, DJIA Simulation Performance [3].

Throughout the course of the simulation, I have been looking to the Dow Jones Industrial Average when evaluating the performance of my portfolio. The DJIA saw a sharp drop around June 24th, which is the day after the historic Brexit vote (see Fig. 5.6.11). Prior to this decline, it appears the Dow was showing a cup and handle pattern, even exhibiting the upward trend that follows. In the six week trading period, the DJIA rose by 3.33%, an impressive growth rate. There were many factors that contributed to this, including the key decisions to leave the national interest rates unchanged by the Federal Reserve. The 3.33% increase by the Dow pales in comparison to the 19.98% growth observed by the simulation portfolio.

6. Conclusion

6.1 Post-Simulation Analysis

At the conclusion of the simulation, the value of the trading portfolio is \$5998.93. This represents an increase of \$998.93, or nearly 20%, on an original investment of \$5000 in a six week timeframe. As illustrated in Fig. 6.1.1, the cumulative value of the portfolio assets rose at a generally constant rate except for a small deceleration in Week 3. If extrapolated for a full 52-week period, the \$5000 portfolio would be worth \$13657, with more than \$8500 (170%) in profit.

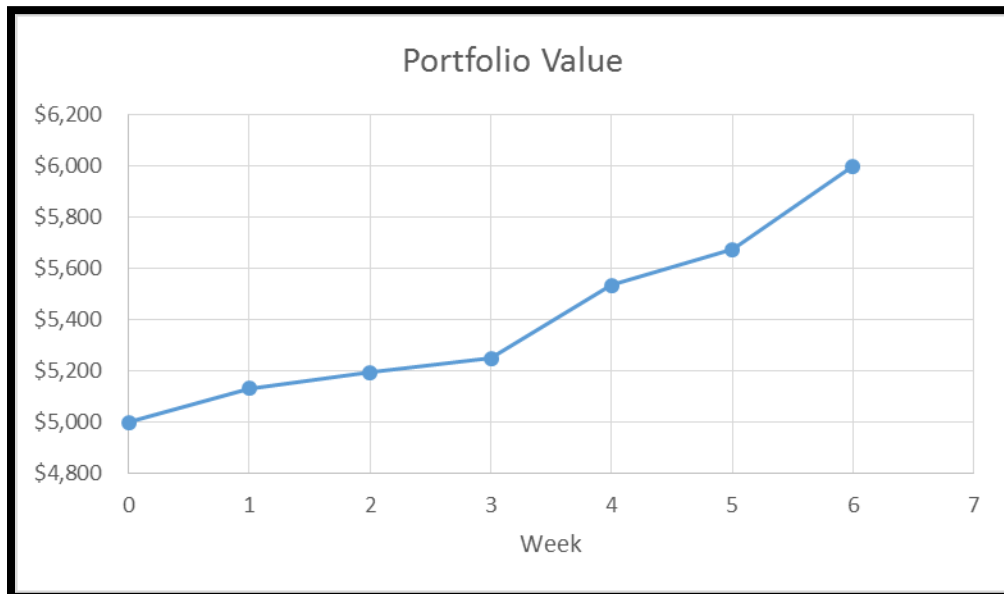


Fig. 6.1.1, Portfolio Price Trend

Over the course of the entire simulation, the portfolio was never valued at less than \$5000 and never saw a negative week (depicted in Fig. 6.1.1). By comparison, the Dow Jones Industrial Average Index, which is the collection of 30 significant stocks traded on the NYSE and NASDAQ exchanges, only grew by 3.3%. This means that the portfolio of selected stocks outpaced the DJIA

by more than 16% in a relatively short trading period. While this is an interesting statistic, it must be noted that the stocks in the simulation portfolio were specifically selected for their volatility and short-term earning potential, while the larger companies that make up the Dow Jones Index are much more reliable in the long term.

Company Name	Symbol	Market	Shares	Purchase Date	Sale Date	Purchase Price	Sale Price	Difference (\$)	Difference (%)	High*	Low*
MeetMe, Inc.	MEET	NASDAQ	245	6-Jun	15-Jul	\$4.06	\$6.34	2.28	56.16%	\$6.43	\$4.04
MeetMe, Inc.	MEET	NASDAQ	280	11-Jul	15-Jul	\$5.87	\$6.34	0.47	8.01%	\$6.43	\$5.85
Baldwin and Lyons, Inc.	BWINB	NASDAQ	51	6-Jun	15-Jul	\$24.00	\$25.53	1.53	6.38%	\$25.81	\$23.66
A.O. Smith Corp.	AOS	NYSE	15	6-Jun	15-Jul	\$82.54	\$90.96	8.42	10.20%	\$91.90	\$81.01
Manning & Napier Fund	MNRIX	NASDAQ	200	6-Jun	11-Jul	\$7.70	\$8.22	0.52	6.75%	\$8.22	\$7.69
*High and Low listed for period of ownership											

Fig. 6.1.2, Position Price Analysis [3].

As Fig. 6.1.2 illustrates, the best performing stock from the simulation portfolio was MeetMe, Inc. (MEET). MEET grew by more than 54% in the six week period, which puts the small social media company on pace to double in value in roughly 11 weeks. When originally selected, MeetMe stood out as a bullish company in a hot market sector poised for large growth. While the growth was expected, a 54% increase vastly outperformed any projections. Initially I invested 20% of my starting capital in MEET, and later reinvested more than \$1600. Had I invested the entire \$5000 in MeetMe initially, my portfolio would have finished the simulation with a value of \$7700.

My worst performing investment was Baldwin and Lyons, Inc. (BWINB), the property and casualty insurance company originally purchased at \$24.00/share. BWINB stalled for a few weeks, with much uncertainty coming from the decision by the Federal Reserve to leave the federal interest rate unchanged. In fact, Baldwin and Lyons fell nearly 3.5% the week of the Federal Reserve meeting, and took yet another week to rebound back to the original purchase price.

BWINB finished the simulation with a value of \$25.53, up 6.38% in six weeks. Growth of more than 6% in six weeks is very respectable, but was overshadowed by the outstanding performance of the other portfolio positions.

I only made two trades throughout the course of the simulation. On July 11th, at market open, I sold all 200 shares of my Manning & Napier Real Estate mutual fund (MNRIX). I then used the proceeds from that sale to purchase 280 additional shares of MeetMe, Inc. (MEET). These two trades were made in an attempt to maximize the final value of my portfolio in the final week of the simulation. By July 11th, MeetMe had proven itself as a reliable earner and showed no signs of regressing. I opted to sell MNRIX, even though it was outperforming Baldwin and Lyons at the time, because it didn't have the potential for rapid growth. Being a mutual fund, or a compilation of many stocks, MNRIX was intended to provide stable, steady growth in a portfolio of volatile, high-risk stocks. This decision led to a net profit of \$146, exactly what I had hoped for when I made the trades. As for the lack of trading during the course of the simulation, I didn't feel that the risk of reinvesting profits was worth the potential reward. There is obviously no sure-thing in the stock market, and the stocks that I had initially selected were performing better than I could have ever hoped for when I selected them. One of my goals for this project was to finish the simulation up as much money as possible, and I felt that the best way for me to achieve that goal was to stick with my original stock selections. I felt that I provided adequate insight into my reasoning behind not trading, and based my decisions on the weekly stock performances that I observed.

6.2 Assessment of Goals

- *To understand factors that determine rise and fall of stock market prices*

Throughout the course of the simulation, I gained an understanding as to how world events as well as company tendencies can dictate how the stocks in my portfolio perform week-to-week. For example, the Brexit vote lead to a down week for my portfolio as the world economy was at a crossroads. The same can be said for the Federal Reserve's decision not to change the interest rate. Events such as these made me realize what can and does affect the performance of a stock.

- *To develop knowledge necessary to make financially-responsible stock market decisions*

At the beginning of the project, I was unaware of many key indicators that can help predict how a stock will perform. One of the better precursors that I learned about was the quarterly report, where a company shares its financial performance with shareholders. A quarterly report can make or break a company's stock performance, and meeting or exceeding analyst expectations on earnings and profits is crucial to a company's growth. Another key piece of information that I learned about was a dividend, where a company pays a share of its profits to its shareholders. Dividends can assure an investor of a return on their investment and should be taken into consideration when deciding where to invest. These concepts helped me make informed decisions when selecting stocks to invest in.

- *To gain experience recognizing the impact of real-world events on stock prices*

As mentioned above, the events that occur both globally and domestically can have a great impact on the performance of a company. A good grasp of the global landscape, along with a solid understanding of the industries that a company operates in, can be the difference between making and losing money. The Brexit vote, while largely unprecedented, provided a good lesson on how

the actions of one nation can affect the global economy. I was fortunate not to overreact when each of my positions suffered losses all at once.

- *To compare the different types of stock market and non-market investments, such as:*

- *Stocks*

- *Bonds*

- *Real Estate*

- *Mutual Funds*

- *Currency*

- *Commodities*

In this simulation, I only dealt with stocks and, on a limited basis, mutual funds. However, through my research I gained a limited knowledge of how each of these investments differ from each other. Overall, had the simulation been over a longer timeframe I would have had more experience in these different types of investments. If I wanted to invest my own money in bonds, real estate, currency, or commodities, I would need to do more focused research to make an adequately informed decision.

- *To trade and evaluate the performance of selected stocks with the intention of making a profit*

My main goal throughout the course of the simulation was to maximize my capital gain at the end of the six week trading period. While I may not have made many trades because I was so profit-focused, I don't believe that trying to make money in the stock market is a bad thing. If my main goal was to invest in as many different companies as possible, I would have bought and sold more stock and not held positions as long.

- *To build a database of trustworthy sources that provide reliable information aiding in stock market decisions*

I trusted a number of sources during the trading period, including finance.yahoo.com, fidelity.com, Investopedia.com, finance.google.com, money.cnn.com, and Apple Stocks. I found all of these to be reputable, reliable sources for up-to-date stock quotes and information. There was, however, some discrepancy in the quoted stock prices from different sites. This becomes evident in the weekly price graphs from Yahoo Finance, as the closing values don't exactly match those quoted by Fidelity.com. I did take note of this issue, but since the graphs were for analyzing general trends I deemed the error within tolerance.

- *To understand laws pertaining to the stock market that will be governing all actions*

While there were many laws and regulations that governed the events that I followed, I personally didn't consider any legal guidelines or how they impacted stock performance. I assumed that the companies that I invested in were adhering to the laws of their respective industries. This may not have been a safe assumption to make, however. Had I invested in a fraudulent company, I could've seen my investment disappear if the company had gotten busted. In the future, I should take care to ensure all of my investments are legally sound.

- *To research and understand different investment strategies*

I learned a lot about different styles of investing, from long-term to low risk to volatile day-trading. I settled with a more volatile portfolio aimed at making money quickly while incorporating a mutual fund for long-term stability. I found that this style worked well, but was mostly dictated by the timeframe that I would be trading in. As I mentioned when analyzing the performance of MNRIX, I would have been able to diversify my investment style had the simulation been over a longer period.

- *To be able to predict general trend of financial landscape and make decisions accordingly*

While I was able to identify and predict some of the general trends that occurred with my investment prices, I didn't trust the validity of my predictions. There were multiple instances where I correctly predicted a stock to drop in value, yet I wasn't confident enough to sell before my predicted drop for fear of being wrong. I believe that with more experience I would gain the confidence to both predict price trends and act upon my predictions.

- *To recognize conflicting investments in competing sectors*

This was one of my main considerations when selecting my initial stocks. I made a very conscious effort not to invest in multiple stocks in the same or competing sectors of the market. This strategy ended up working in my advantage, as each of my investments was profitable in a different sector of the market.

- *To maintain a detailed history of trades, decision making factors, and research findings*

Through the Transaction Log I was able to maintain an up-to-date history of all transactions. Also, I kept a weekly summary of research and decision factors that were considered when making any investments. These records are useful when looking back at the price history of a stock and wondering why I may or may not have made a decision.

6.3 What I've Learned

Over the course of this project, I have learned many valuable lessons that I will benefit from in the future. One of the more important realizations that I came to was that I am going to make mistakes, and sometimes they can't be avoided. When planning for the market simulation, I attempted to account for everything in regards to selecting stocks that would demonstrate growth. I examined which sectors of the market were performing well and were projected to grow. I noted earnings report dates and predictions for whether or not they would be well received. I took into

consideration the effects of the current federal interest rate and the impending Federal Reserve meetings. I made a point of diversifying my portfolio of stocks in an attempt to maximize earning potential. While I thought that I had accounted for every variable involved with buying and selling stocks, I was still blindsided by unforeseeable events during the six week simulation. In my case, the British vote to exit the European Union (“Brexit”) caused a setback in the growth of each of my positions. In the weeks prior to the Brexit vote, my stocks had all been performing well and consistently growing. Suddenly, an unprecedented shift in the global financial landscape caused single-day drops in all of my held positions and I couldn’t account for why. I quickly learned that nobody was sure what would happen to the markets as a result of the Brexit, and the initial drop in the market was due to this uncertainty. This experience showed me that it is impossible to plan for everything, and there will always be risk in the stock market.

Another lesson that I learned from this project is that there is no perfect system for making money in the stock market. In my pre-simulation research I learned about many different styles of stock trading, each with their own unique benefits and drawbacks. There was no clear strategy that was blatantly better than the others. Instead, I believe that the parameters that dictate trading also dictate which strategy should be employed. Factors such as capital, trading period, tolerance for risk, available time to devote to research, and depth of market understanding all effect how an individual should buy and sell stocks. In my case, the short investment period and relatively little investment capital led me to craft a volatile and risk-laden portfolio with high short-term earning potential. For someone looking to invest over a five year period with \$100,000 my strategy may not be the best option.

During the six-week simulation, I did a lot of review of my portfolio’s performance from the prior week. In this analysis, I got the opportunity to look back at my predictions and decisions

and evaluate whether or not they were correct. During these times I always regretted not making trades or identifying a certain trend that I thought looked obvious. However, I realized that I was regretting not making decisions once I saw that they were the correct moves, and that it's easy to second-guess decisions after you've made them. Not all decisions that I make are going to turn out perfectly, and some are going to fail. I can't dwell on past failures, I need to learn from a mistake and move on.

One simulation-specific conclusion that I arrived at was that six weeks isn't enough time to properly evaluate a stock's performance. While some trends can be identified in a month or even week-to-week, most take months to a year to develop and lead to the expected result. Though I did have access to years of performance graphs prior to investing, I suspect that some of the trends that I identified on a weekly basis occurred by chance. In the future, I would use a larger sample period to judge a stock's performance and make investment decisions.

The final realization that I came to during this project was that you can't do too much research. Prior to selecting the stocks that I would be investing in I did a lot of research into what to look for and where to look in regards to stock performance. I also learned a lot about stock price trends and how to identify them. With all of this research, I still found myself looking up terms, policy, and examples as I came across unfamiliar concepts during the simulation. With a topic as broad as "The Stock Market", I could do a weeks-worth of research and only begin to scratch the surface. There is so much to understand, and the best way to learn is to sit down and do the research.

While I am pleased with the results of my project and the performance of my simulation portfolio, there are some aspects of the project that I would change if I were to do it over again. One of these aspects would be the length of the simulation. As noted above, six weeks isn't long enough to properly identify trends and their impact on future stock prices. Also, the short trading

period dictated how I invested my starting capital, leading to my limited experience with any investment other than public stocks. I believe that a length of 10-20 weeks would provide adequate time for a true trend to emerge and for a more realistic, robust investment strategy.

Another aspect of the project that I would change if given another opportunity is my trading frequency. In the Simulation Parameters I set starting capital, transaction fee, and diversification requirements. I would add a trade activity minimum to this list also, forcing myself to buy and sell a larger number of different stocks. In the case of this simulation, I made decisions based on the current stock performance and predicted trends. In a second iteration, I would also have to consider a weekly transaction requirement when making decisions.

Throughout this project's completion I found myself arriving at many conclusions regarding both the stock market and project work in general. There were many hurdles along the way, but through hard work and perseverance I was able to succeed. Realizations of failure, missteps, and oversight led to important lessons learned, and I believe that I will benefit from many, if not all, of these lessons in my future pursuits. I would like to thank anyone who aided in the completion and/or review of this project. I'd especially like to thank Professor Dalin Tang for his guidance, patience, and advice.

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